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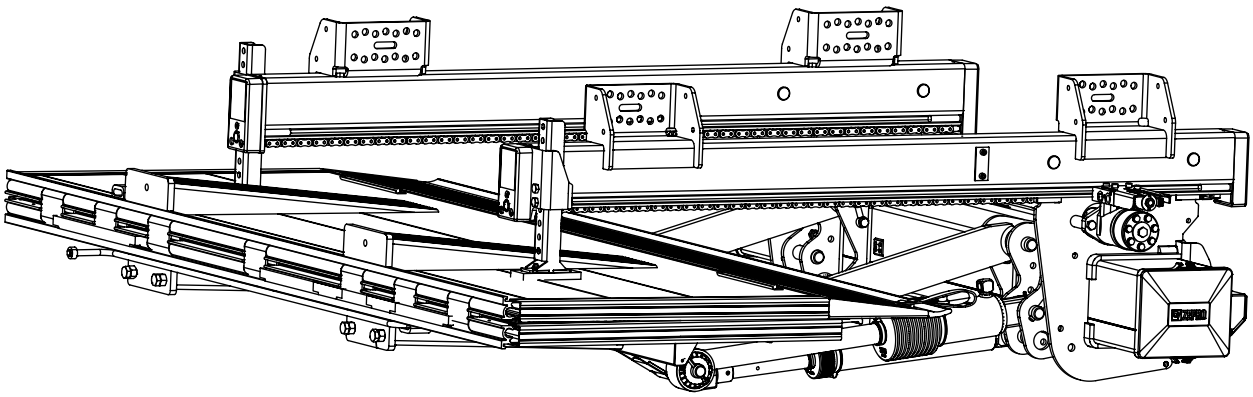
Installation Manual

Liftgate

ZS MK2

79013TL



2024-11-28

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Contents

1 Important information

1.1 Attention!

The following warning signs appear in the installation instructions and are intended to draw your attention to circumstances that can potentially cause problems, near misses, personal injury and/or damage to the product, etc.

⚠ WARNING!
WARNING indicates a potential hazard, which if ignored may lead to serious, life-threatening injury.

⚠ CAUTION!
CAUTION indicates a potential hazard, which if ignored, may lead to minor injuries.

IMPORTANT!
IMPORTANT indicates a risk of equipment damage.

NOTE!
NOTE! refers to additional information that may help the reader understand, or perform, a given operation.

1.2 Configuration

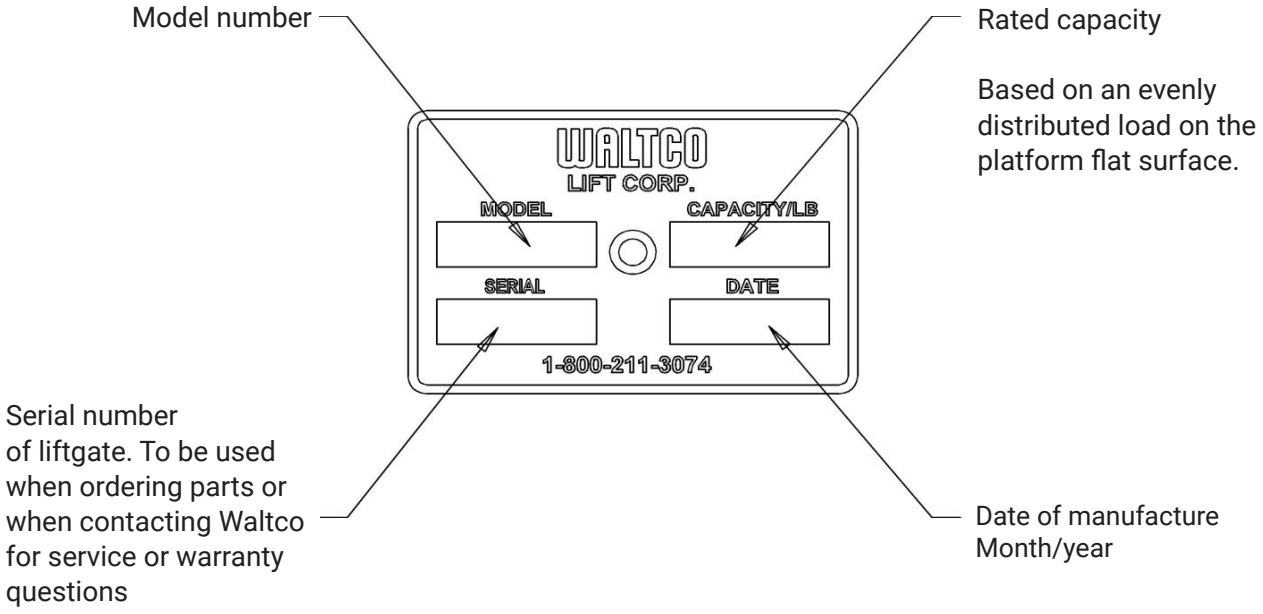
This liftgate is available in different configurations. Lift capacity and platform size may vary. However, the installation principles are the same whatever the configuration.

- Lifting capacity: 3300 or 4400 lbs.
- Max lift height: 61 inches.
- Slide profiles: 69.5
- Platform: 62 x 94 or 78 x 94 inches.

1.3 Technical support

If technical support is needed, please contact Hiab/Waltco at 800-211-3074 or visit Hiab.com and follow the prompts to Waltco.

Always be ready to state the liftgate's production number to guarantee you receive the correct information. The production number is given on the identification plate located on the liftgate frame.



Picture 1. Identification plate

1.5 CE marking

ZEPRO liftgates for sale on the European market are CE marked (Conformité Européenne). The manufacturer guarantees that the product complies with the EU Machinery Directive.

Follow the installation instructions carefully. Modifications not approved in writing by the manufacturer are not permitted. Welding is not permitted.

CE

1.6 Product approval

Properly assembled, this product meets relevant requirements according to EN 1756-1:2001 + A1:2008.

1.7 Hydraulic oil

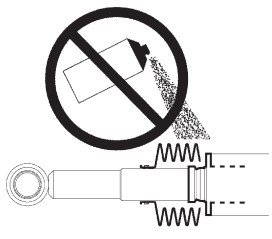
If the hydraulic oil needs to be replenished, use Shell Tellus 15 or equivalent.

1.8 Warranty

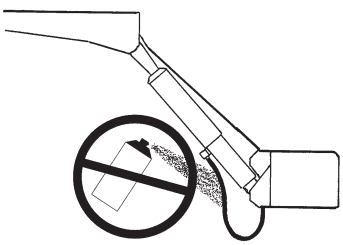
After installation, testing and verification, the liftgate's delivery card must be registered for the warranty to be valid.

1.4 Repainting

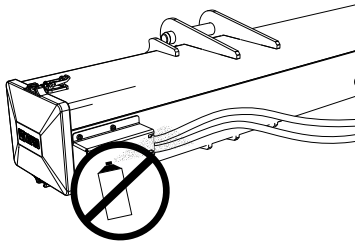
IMPORTANT!
Piston rods and cylinder covers must not be painted. Among other things, this can damage the cylinder gaskets.
Boots, hydraulic hoses and cables may not be coated/painted as the solvent in the paint can damage the hoses and cables and impair durability.



Picture 2. Piston rods, cylinder covers and boots



Picture 3. Hydraulic hoses



Picture 4. Cables

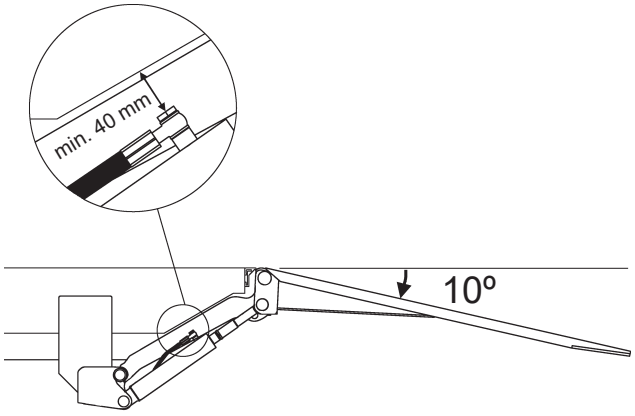
2 Safety rules

2.1 Moving parts - free movement

⚠ WARNING!

During final inspection*, the space occupied by the moving cylinders must be cleared and made safe. There is a risk of collision between the cylinder and the following items: subframe, truck chassis, beam for rear light (number plate) and the chassis bracket of the lift (with a short overhang).

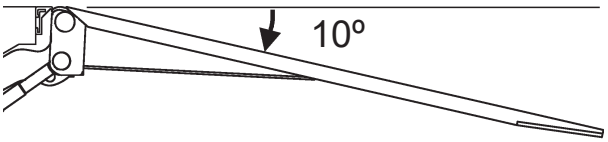
**Final inspection to be carried out with the platform at the vehicle floor and tilted down 10°. The clearance from the closest part of the cylinder must be at least 40 mm.



Picture 5. Clearance to the closest part of the cylinder must be at least 1½ inches

⚠ WARNING!

The platform may not be tilted down more than 10º from the horizontal.



Picture 6. The platform may not be tilted down more than 10º from the horizontal

2.2 Connection of third-party equipment is forbidden

⚠ WARNING!

Connecting third-party equipment (electric or hydraulic) to Zepro liftgates is forbidden. Connecting third-party equipment could interfere with the lift's system and its safety functions. Risk of injury and damage. If it is necessary to install other equipment, check the vehicle manufacturer's body instructions and use the attachment features on the vehicle.

2.3 Installation

⚠ WARNING!

Installation where the platform cannot reach ground level is prohibited.

⚠ WARNING!

ZEPRO liftgates are only approved for installation using ZEPRO assembly kits.

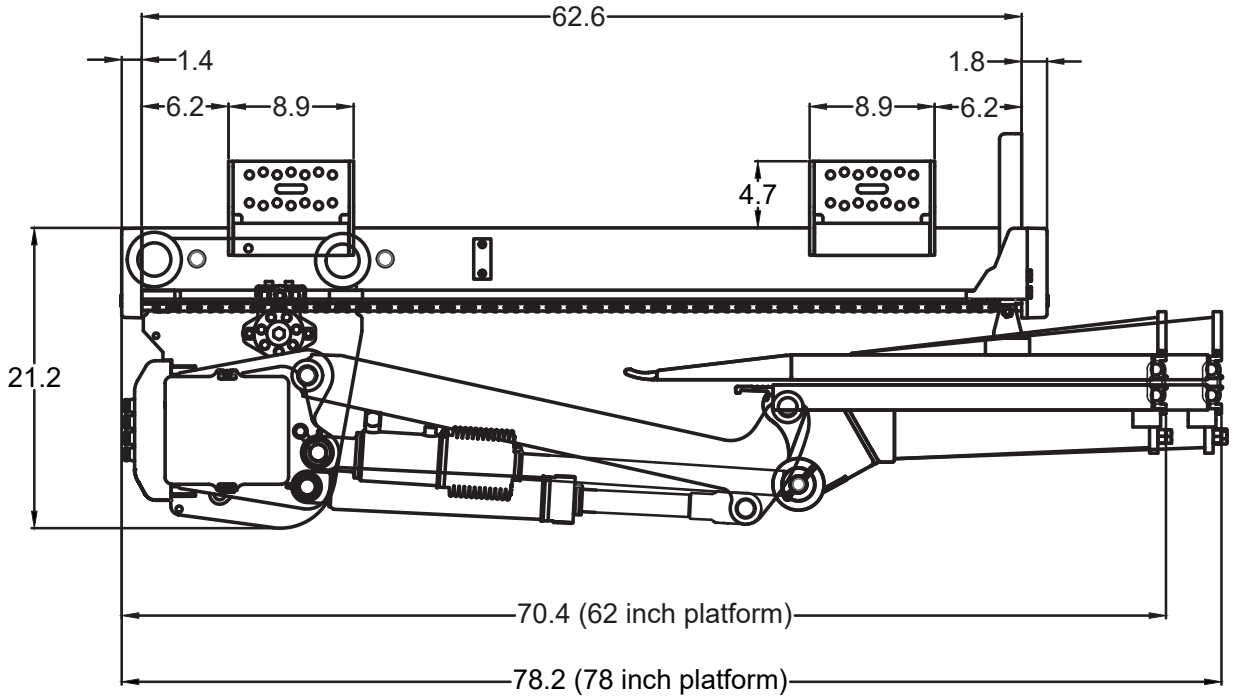
IMPORTANT!

All specified tightening torques apply when using torque wrench or screw/nut runner with torque control. Torque spread max ±5%.

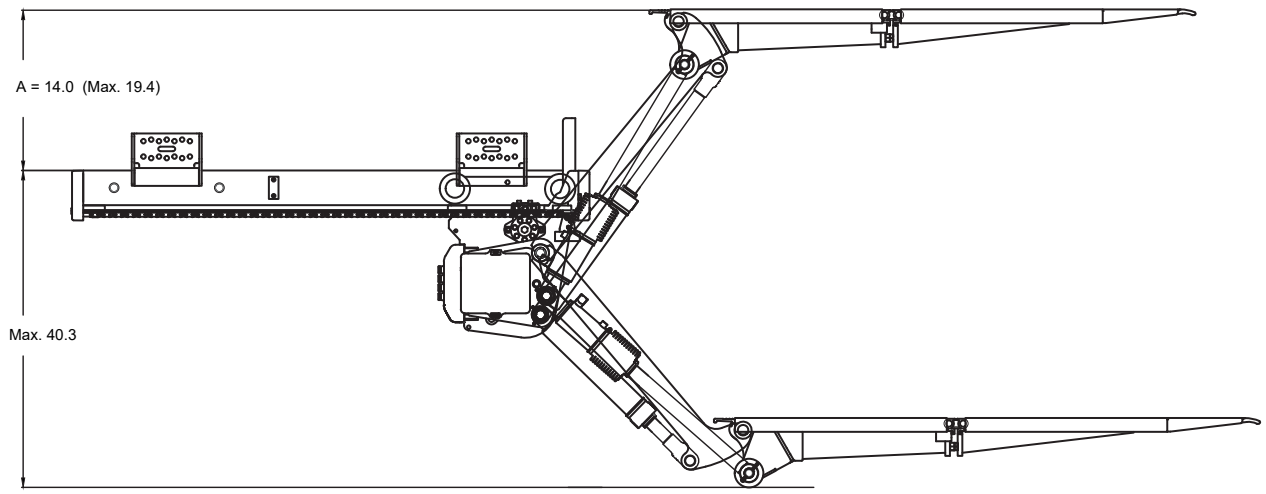
3 Before installation

3.1 Installation dimensions

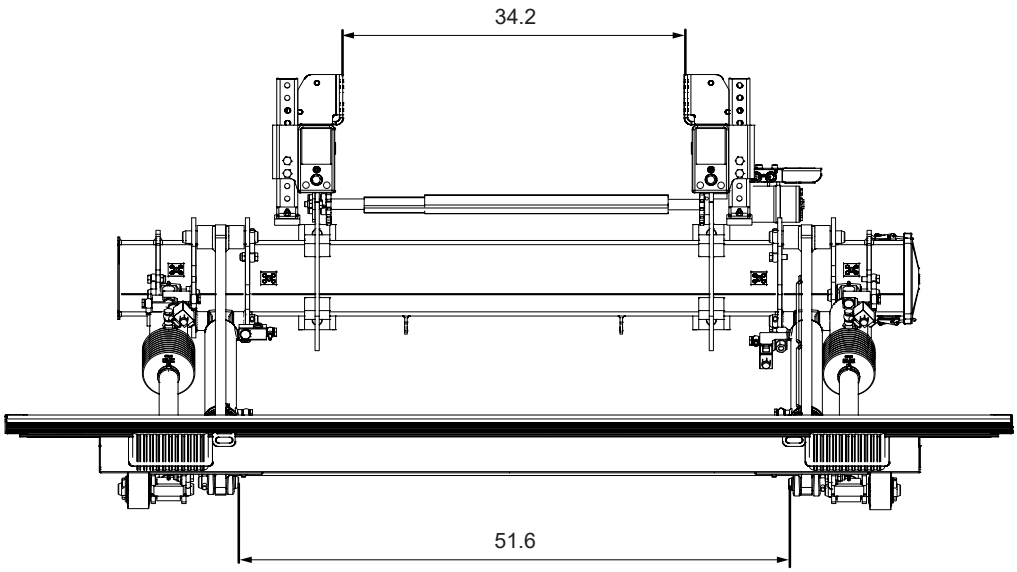
Before starting the installaiton, review the drawings below to determine if your liftgate will fit on the truck or trailer you are installing it on. All dimensions are in inches. For help with calculating installation dimensions, contact Waltco at Phone: 800-211-3074 , or visit the web site Hiab.com and follow the prompts to Waltco.



Picture 7. Installation dimensions



Picture 8. Installation dimensions

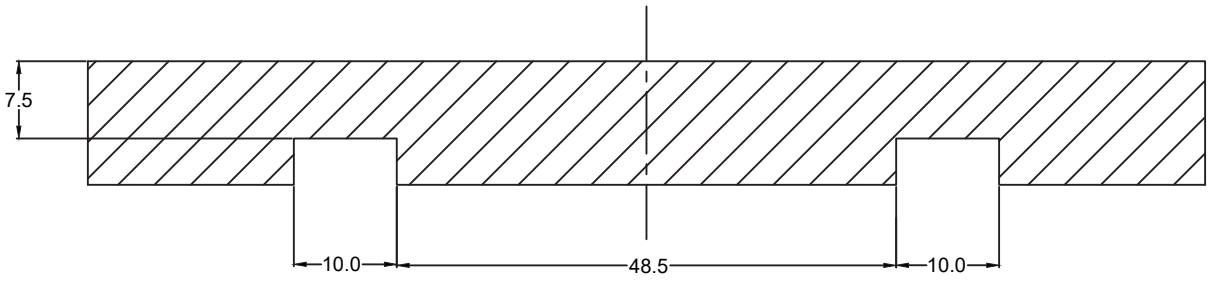


Picture 9. Installation dimensions

3.2 Rear member cut-outs

It is often necessary to create cut outs in the rear beam to provide space for the platform arms when the platform is in the upper position. See illustration below.

1. Measure and mark the location and depth of the cut outs on the rear beam. The two cut outs must be centred on the rear beam, i.e. both cut outs must be an equal distance from the mid-point of the beam.
2. Cut along the markings.
3. Grind away any burrs or sharp edges.



Picture 10. Rear beam cut-outs at A=14 inches

4 Installation

NOTE!

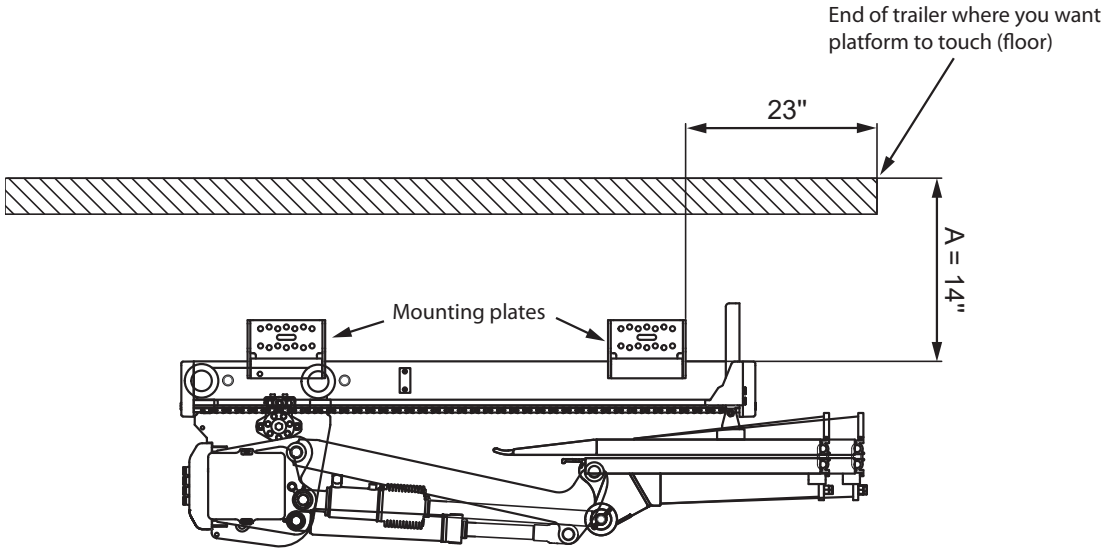
For trailer installations refer to the supplemental sub frame instructions. Sub frame mounting is required on trailers to install liftgate.

4.1 Method 1 - For liftgates with pre installed platform

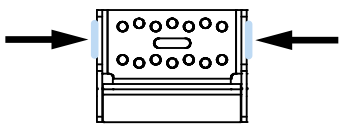
Trailer or Truck floor indicates where the platform connect to trailer. If you have a step leading to the truck floor you may not reach the inner floor without notching platform. Contact Waltco Tech Support if you have questions.

4.1.1 Support frame

1. Carefully position the liftgate under the trailer.
2. Carefully raise the liftgate and position it so the rear end of the mounting plate is 23" from the door sil and the upper edge of the track is 14" down from the floor as shown in diagram below. Make sure the track is equal on both ends and centered to the truck floor.
3. Weld the mount plates to the chassis frame temporarly using 2-2" welds along front and back of each plate (4 total).
4. Temporary connect power to the liftgate in order to test the unit and making final adjustments before fully welding the mount plates. See section "4.4 Temporary power connections" on page 14.
5. Test the unit and make final adjustments before fully welding the mount plates. See section "7 Test and adjust liftgate" on page 27.



Picture 11. Installation of support frame



Picture 12. Temporary welds (x4 mounting plates)

If you have used this method, continue to "4.5 Angle sensor for autotilt" on page 15 for next steps.

4.2 Method 2 - For liftgates without pre installed platform

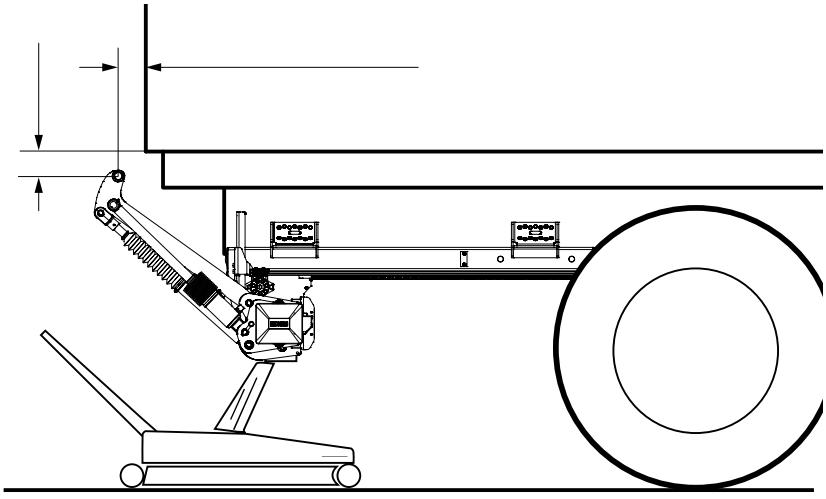
Trailer or Truck floor indicates where the platform connect to trailer. If you have a step leading to the truck floor you may not reach the inner floor without notching platform. Contact Waltco Tech Support if you have questions.

4.2.1 Mounting jig

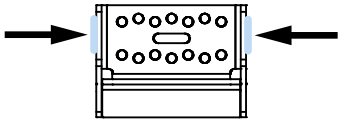
1. Measure and mark the midpoint of the rear member of the vehicle. See "Image 15.
2. Bolt or spot-weld the mounting jig to the rear member, so that both mid-points are aligned. See "Image 16.

4.2.2 Support frame

1. Carefully position the liftgate under the trailer.
2. Temporarily connect power to the liftgate to enable the lift functions, see section "4.4 Temporary power connections" on page 14.
3. Carefully drive the slide function so the support frame is positioned as far back as possible. Position the frame as shown in the diagram below.
4. Carefully raise the arms to their highest position.
5. Attach the lift arms to the eye of the jig. Use the platform's normal bolts.
6. Raise the support frame to the trailer frame. A workshop jack or forklift is helpful.
7. Weld the mount plates to the chassis frame temporarly using 2-2" welds along front and back of each plate (4 total).
8. Test the unit and make final adjustments before fully welding the mount plates. See section "7 Test and adjust liftgate" on page 27.



Picture 13. Installation of support frame in the working position



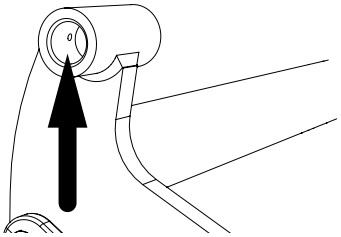
Picture 14. Temporary welds (x4 mounting plates)

4.3 Platform

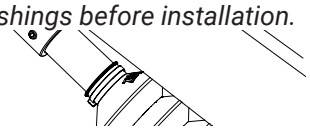
For liftgates without pre installed platform

1. Check that all included components are clean, clean where necessary.
2. Lubricate the lift arms' metal bushings before installation. Make sure that the small holes on the inside of the bushing are filled with grease. Use LE lubricant 4622.
3. Lift the platform, suitably with the aid of a forklift or lifting table, and align it with the lift arms.
4. Install the platform on the arms, using the shafts, screws and spacers supplied. Tighten the screws.
   Tightening torque: 59 Ft-lb.
5. Install one of the tilt cylinders on the platform. Use the enclosed shaft and screw. Tighten the screw.
   Tightening torque: 59 Ft-lb.

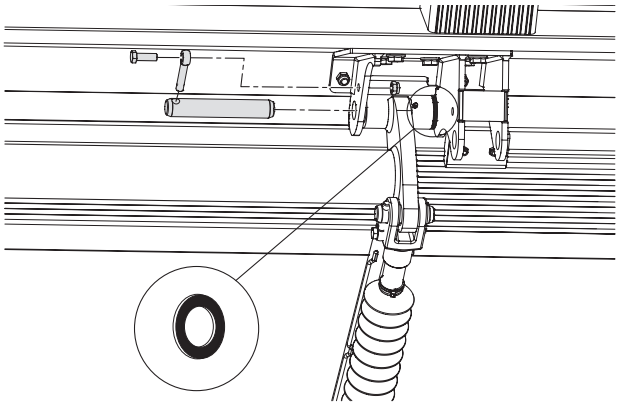
   NOTE!
   Make sure the cylinder is installed with the grease nipple facing up.
6. Fit the support wheel on the shaft. Secure with associated split pin.



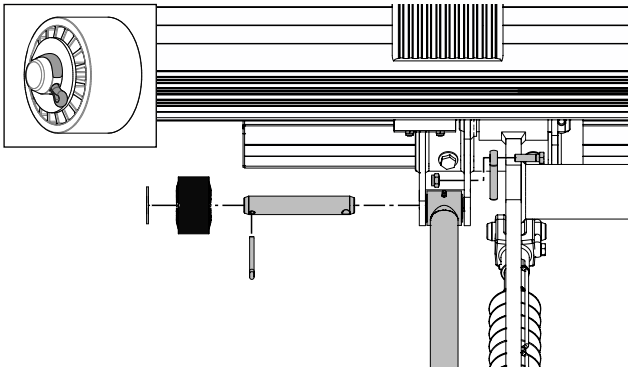
NOTE!
Lubricate the bushings before installation.



Picture 15. Take care to lubricate the metal bushings initially



Picture 16. Install the platform on the arms



Picture 17. Install the tilt cylinder on the platform

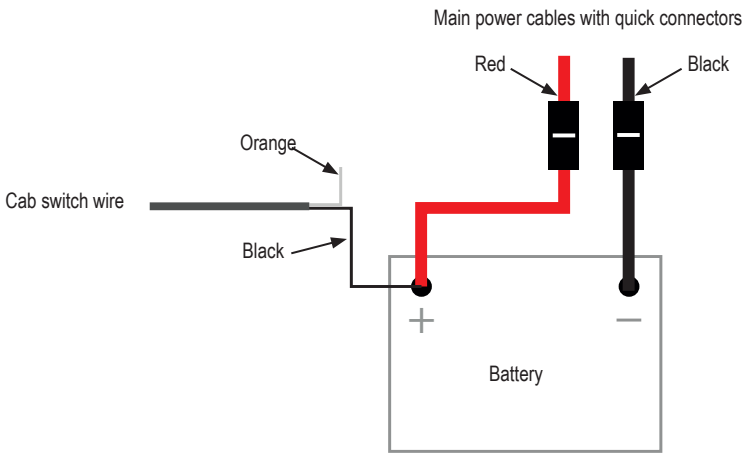
4.4 Temporary power connections

When the lift is installed, it is sometimes necessary to operate the lift functions in order to make adjustments. Temporarily connect the lift to enable the lift functions.

1. Connect earth connection (GND) and +12V battery source to the quick connectors on the main power cables of the lift.
2. Your liftgate is pre-wired with grey insulated wire which has a black and orange wire inside. This is your cab switch wire. Temporarily connect a +12v power source to the black wire, nothing on the white. That will power the relay card and prewired controller switches.

> **⚠ WARNING!**
> Take great care when running the lift functions, ensure nothing gets trapped, risk for personal injury and material damage.

NOTE!
If you need to access the control card and power unit compartment refer to "12.2 Accessing the hydraulic unit and the relay card" on page 44.



Picture 18. Temporary power connections

4.4.1 Battery maintenance

When installing the lift, when the lift is operated repeatedly, the battery charger must be used between operations to maintain the battery charge level.

IMPORTANT!

The battery charger must not be connected when operating the lift. Risk of material damage.

4.5 Angle sensor for autotilt

On liftgates without pre installed platform, install the angle sensor. The angle sensor is connected but not secured to the platform when delivered.

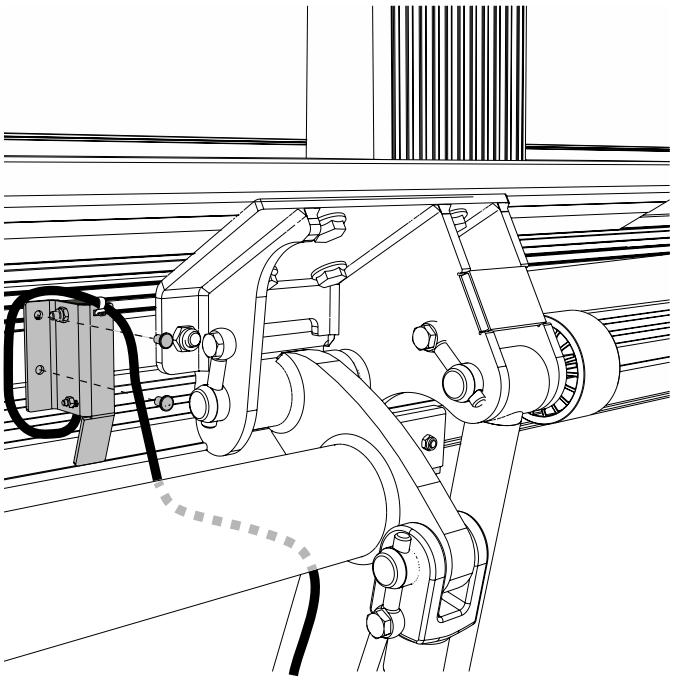
1. When installing the angle sensor on the platform, use the rivets supplied.
2. Secure the sensor cable with cable ties.

IMPORTANT!

Route the cable between the platform and the lift arm tube such that it is well protected when the platform touches the ground.

Leave enough slack to the first cable tie to avoid the risk of damage to the cable during lift operation.

The autotilt angle can be adjusted, see section "7.7 Adjusting the autotilt angle" on page 33.



Picture 19. Installing the angle sensor

4.6 Control unit

IMPORTANT!

The controller's cable intake must always face downwards.

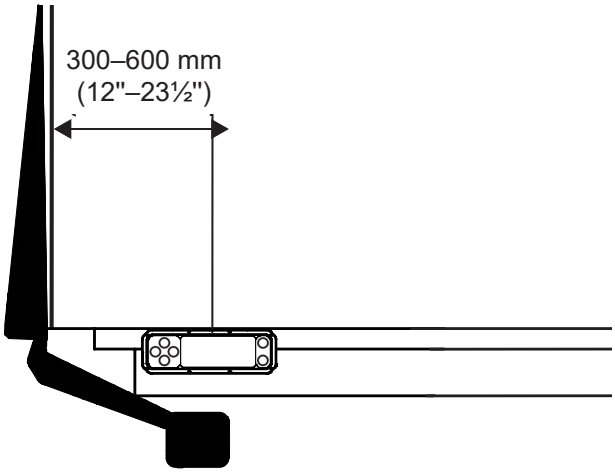
Pay attention and be careful when running cables to get longer life for the cables and to reduce the risk of unnecessary downtime.

The cable must not be fastened to brake lines or the vehicle's normal electrical system.

The cable must be protected by rubber grommets when it passes through beams or walls.

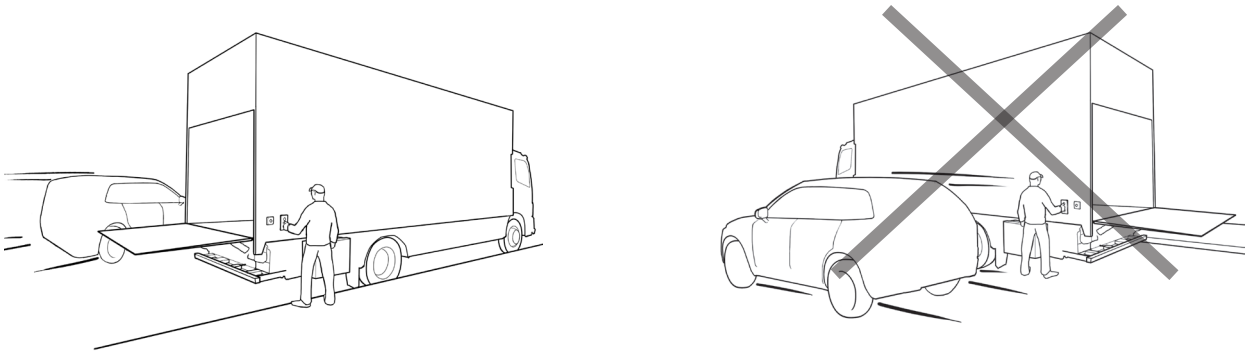
Cables must be installed sufficiently far from, or be protected against, sharp edges so they cannot chafe or otherwise sustain damage that could lead to a short-circuit and cable fires.

Take care not to bend cables to too tight a radius as this can cause damage.



Picture 20. Installing controllers

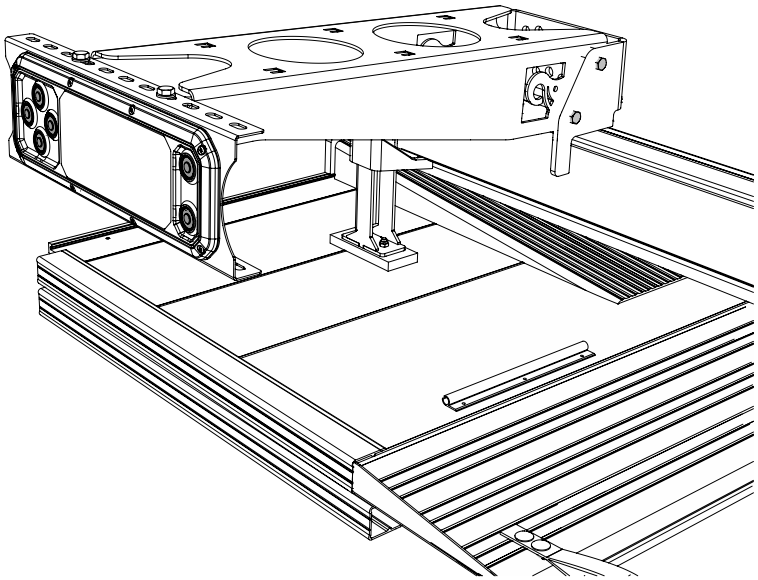
⚠ WARNING!
The primary controller must always be fitted on the side that is facing away from moving traffic. Fitting in any other way involves increased risk of injury.



Picture 21. Installing controllers

For controller, there is a bracket that is used for installation on the liftgate.

1. Install the bracket on the liftgate.
2. Install the controller on the bracket.
3. The cabling is connected from the factory.



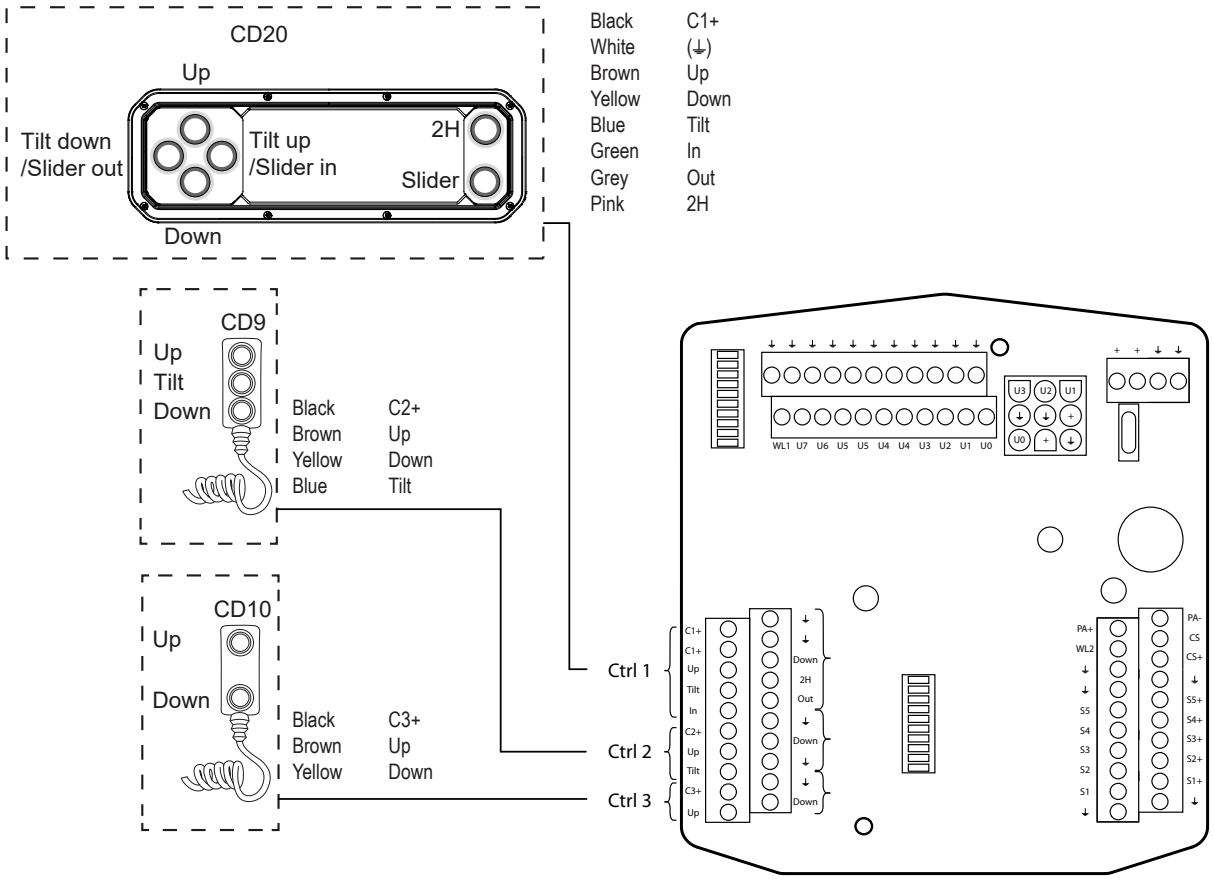
Picture 22. Installation with bracket on liftgate

5 Electrical and hydraulic diagrams

NOTE!
If you need to access the control card and power unit compartment refer to "12.2 Accessing the hydraulic unit and the relay card" on page 44.

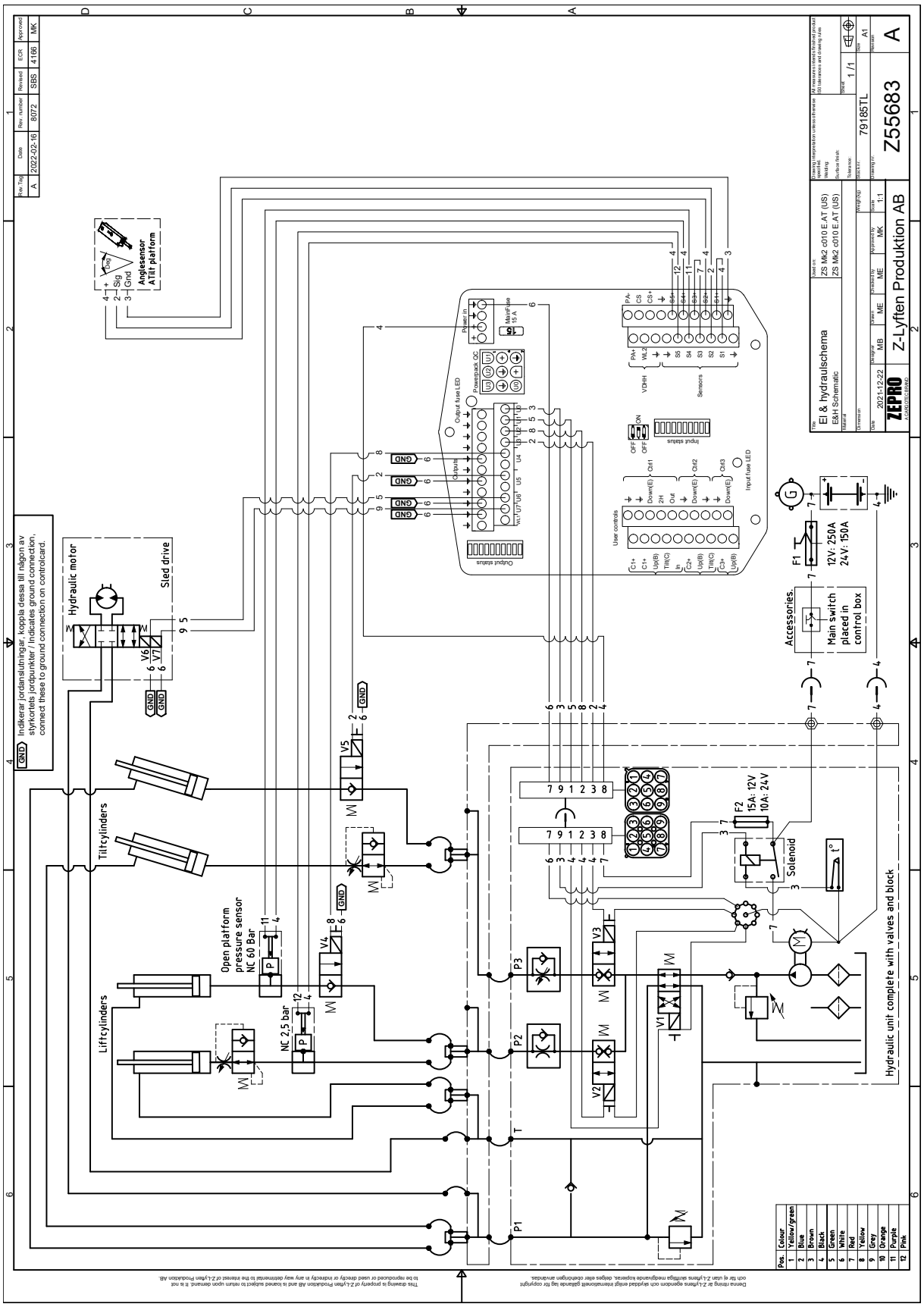
5.1 Control units

The most commonly occurring controller (CD Control Device) models are shown below. Possible controller models vary depending on lift model, configuration and relevant market.



Picture 23. Connection of controller

5.2 ZS MK2 Autotilt

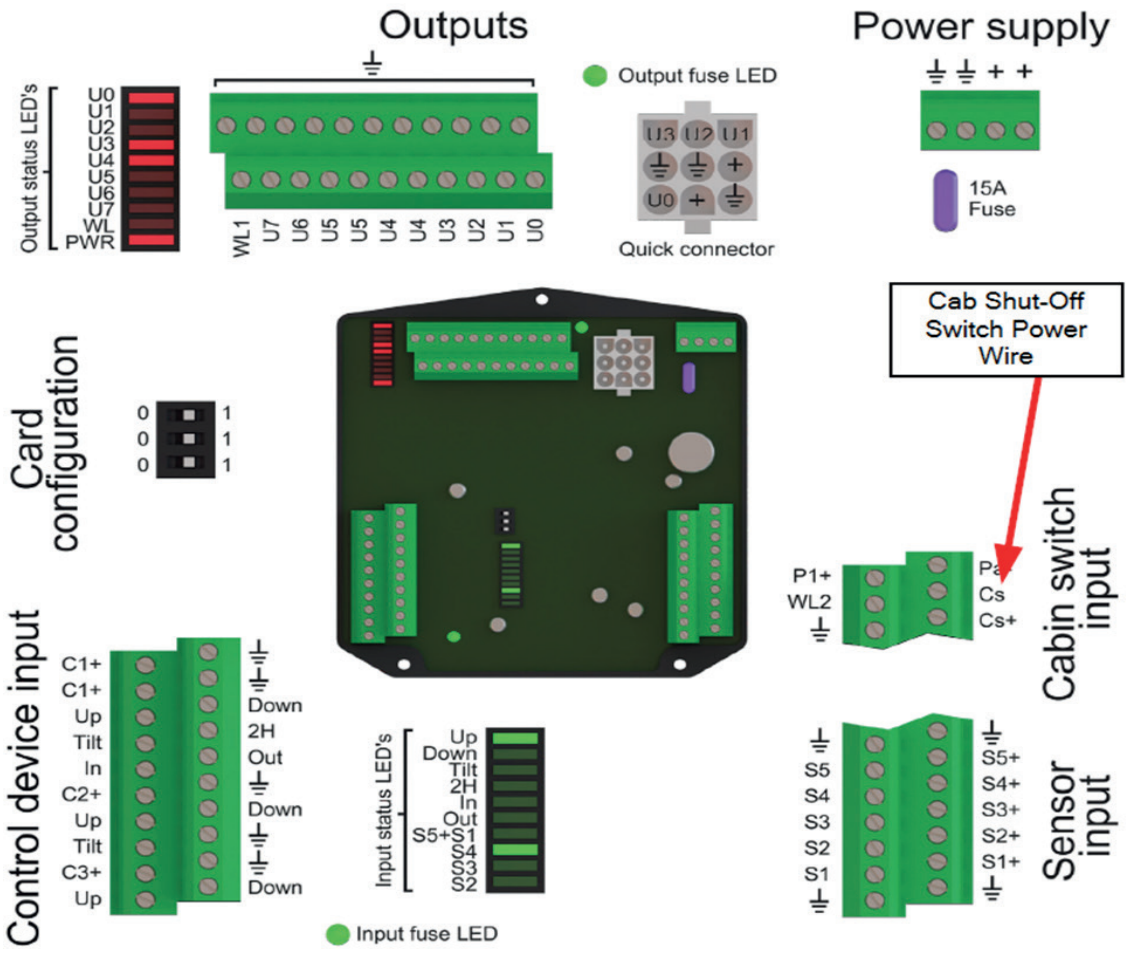


5.3 ZS installation of Cab Cut Off Switch

Truck In-Cab Lift Gate Shut Off Switch Install

As part of the liftgate you will find a Grey insulated cable that has an orange and black wire. This is used for wiring the In Cab Switch.

1. Install the In Cab switch to the dash.
2. Run the grey insulated wire for the In Cab Switch down the chassis frame.
3. Connect on end of the wire to the Relay card at CS. Picture 24
4. Connect the other end of same wire to post on the In-Cab switch

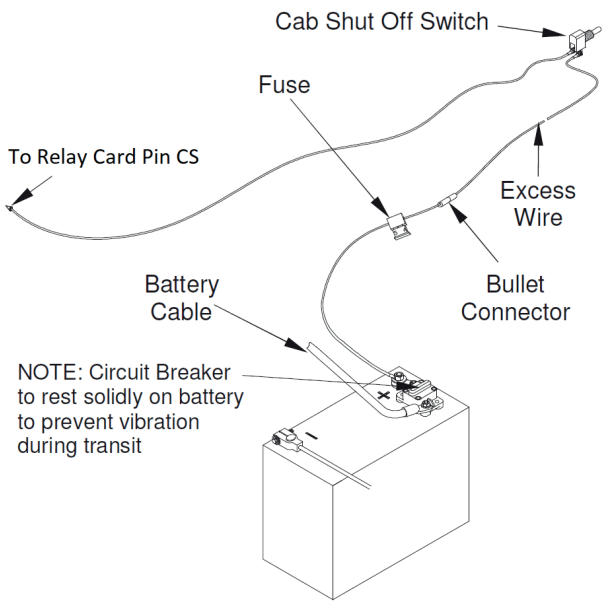


Picture 24. Relay card

5. Do not connect to the battery at this time. Run a 16 ga fused cable from the In Cab Switch to the positive terminal of the battery. Fuse end must be towards the battery end. Picture 25
6. Connect the end on the switch first with #10 ring terminal.
7. Connect fuse end to battery with ⅜" ring terminal. Apply dielectric grease.

IMPORTANT!
Heat shrink all connectors.

IMPORTANT!
Protect wires from any sharp edges or holes that may abrade insulated covering of wires.



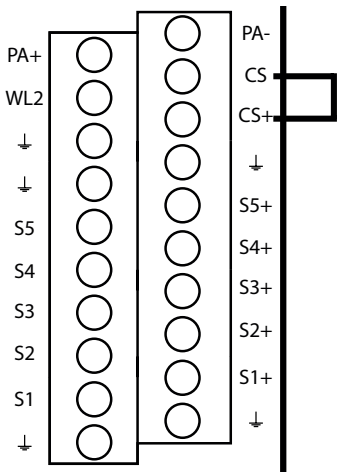
Picture 25. Connection the Cab shut off switch

Trailer Application:

If you are not running an in cab switch you will need to follow the instruction for accessing the relay card to install a jumper between CS and CS+ as shown in the diagram. Picture 26

IMPORTANT!
Secure wire so it does not come near, or in contact with, other vehicle wiring, fuel lines,

brake lines, air hoses, exhaust system, etc.

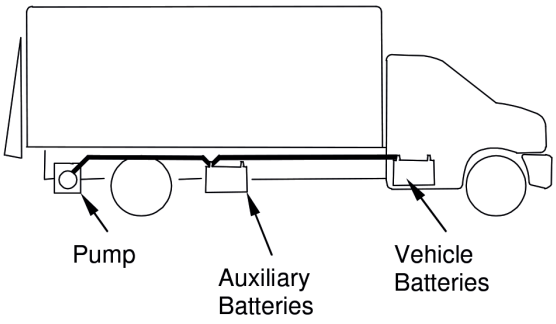


Picture 26. Jumper between CS and CS+

6 Auxiliary Battery Kit with Dual Cables

NOTE!

Aux battery box is usually not used on truck. If you are not using an aux box on your truck, skip this step and proceed to "6.2 Connecting to the truck batteries from the liftgate" on page 23.

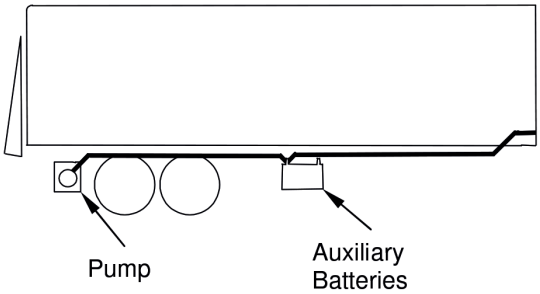


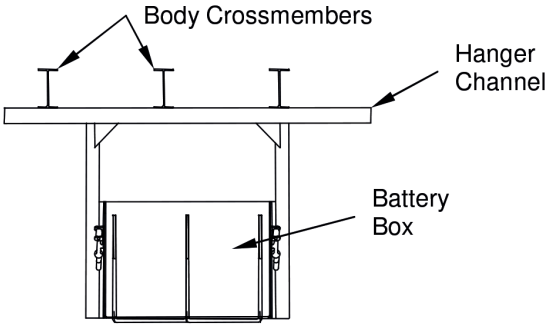
6.1 Determine battery location and cable

1. Determine where auxiliary battery box will be mounted on the vehicle. For trucks your installation will use cables supplied with liftgate. For trailers additional cables are supplied with the trailer kit.
2. Locate battery box in a suitable location under the vehicle body.
3. Weld hanger channel to body crossmembers.
4. Install batteries into box.

NOTE!

Battery recommendation for liftgate use; Dual Purpose, 650-750 CCA, minimum 180 RC, Group 31.





6.2 Connecting to the truck batteries from the liftgate

1. Connect the positive and negative power cable to the quick connectors located by the passenger side trunion of the liftgate.
2. Route power and ground cables along chassis, towards batteries, securing them every 24" with cable ties. Do not connect batteries at this time.

> ⚠ **CAUTION!**
> Be certain cables are protected with grommets when passing through metal holes or oversharp edges.

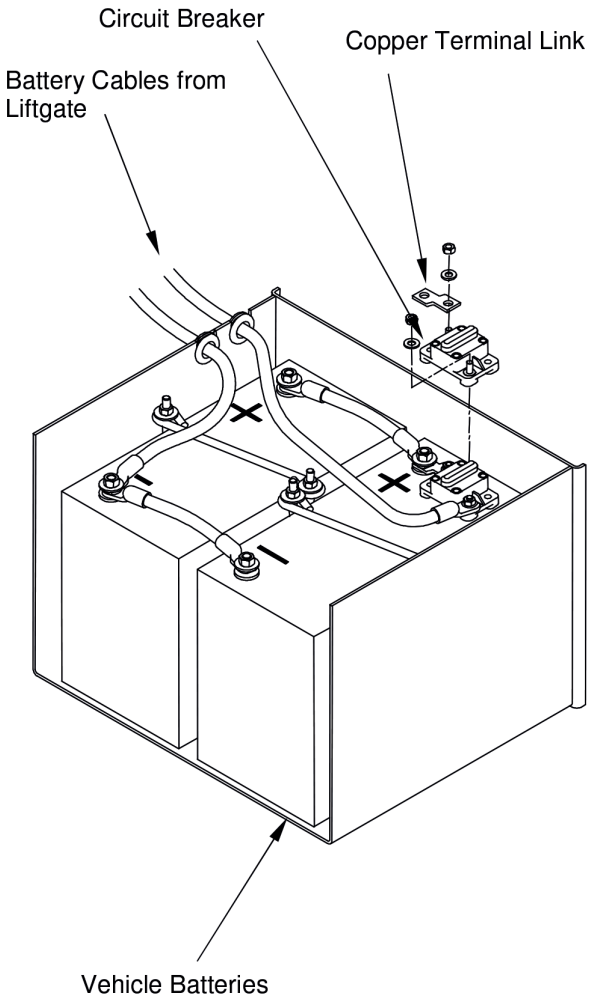
3. Locate and mount circuit breaker directly to batteries using copper terminal link supplied. Circuit breaker must be mounted to give good protection against any objects coming into contact with circuit breaker terminals and causing a short. Position must also be readily accessible to reset breaker.

   NOTE!
   Circuit Breaker is to rest solidly on battery to prevent vibration during transit.

   If unable to connect circuit breaker direct to batteries, an optional jumper cable can be made from excessive length of power cable, see instructions above for installing terminal lugs. Cut cables to required length.
4. Connect power cable (positive) from liftgate to circuit breaker. Then connect ground cable to negative terminal on batteries.
   Apply a generous amount of Dielectric Grease to all Battery terminals and Circuit Breaker terminals.

> ⚠ **CAUTION!**
> Protect wires from any sharp edges or holes that may abrade insulated covering of wires.

> ⚠ **CAUTION!**
> Secure battery cable so it does not come near, or in contact with, other vehicle wiring, fuel lines, brake lines, air hoses, exhaust system, etc.



6.3 Battery Connection when using Aux Battery Box

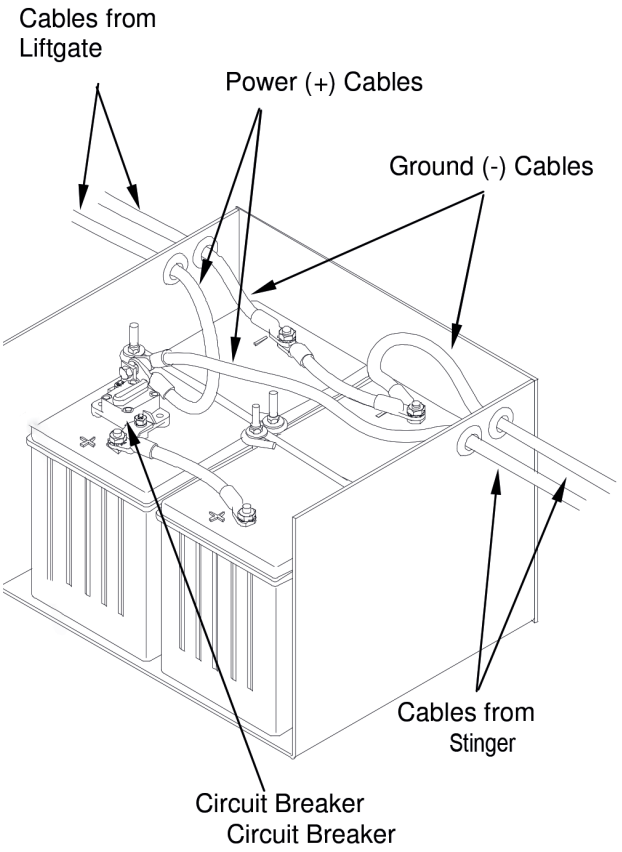
Batteries will require circuit breakers at both the auxiliary batteries and the vehicle batteries.

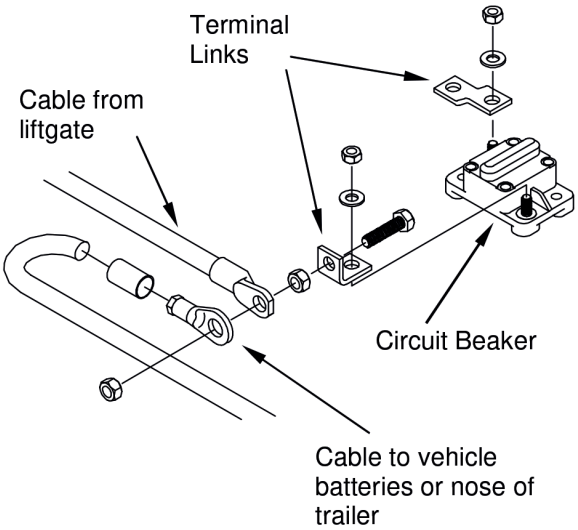
1. Install batteries and secure them using battery tie downs. We recommend two batteries to operate liftgates. Battery specifications are; Dual Purpose, 650-750 CCA, Minimum 180 RC, Group 31.
2. Locate and mount circuit breaker directly to batteries using copper terminal link supplied. Circuit breakers must be mounted to give good protection against any objects coming into contact with circuit breaker terminals and causing a short. Positions must also be readily accessible to reset breakers.

   NOTE!
   Circuit Breaker is to rest solidly on battery to prevent vibration during transit.

   If unable to connect circuit breaker direct to batteries, an optional 24", maximum length, 2 Ga. battery cable may be used.

   Connect cables as shown.
3. Apply a generous amount of Dielectric Grease to all Battery terminals and Circuit Breaker terminals.
4. For trucks, use remaining length of cables supplied with liftgate, and route from auxiliary batteries to vehicle batteries.
5. Install terminal lugs on cables as required.
6. Install circuit breaker and cables to vehicle batteries per "6.2 Connecting to the truck batteries from the liftgate" on page 23





⚠ CAUTION!
Protect wires from any sharp edges or holes that may abrade insulated covering of wires.

⚠ CAUTION!
Secure battery cable so it does not come near, or in contact with, other vehicle wiring, fuel lines, brake lines, air hoses, exhaust system, etc.

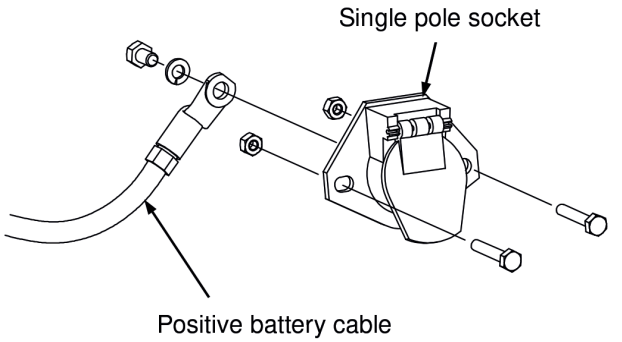
IMPORTANT!
If liftgate has a Mounting Bar, do not operate liftgate before bar has been removed.

Continue to "6.4 Charge cable instruction if using a stinger cord" on page 25 for instructions to install stinger cord or follow supplemental instruction for other charge systems you may be using to charge batteries.

6.4 Charge cable instruction if using a stinger cord

For trailer applications with single pole socket:

1. Drill 1-3/4" hole in nose of trailer for trailer socket.
2. Mount socket to trailer with bolts and nuts provided.
3. Attach cable to back of socket with bolt provided.
4. Apply a generous amount of Dielectric Grease over cable terminal.



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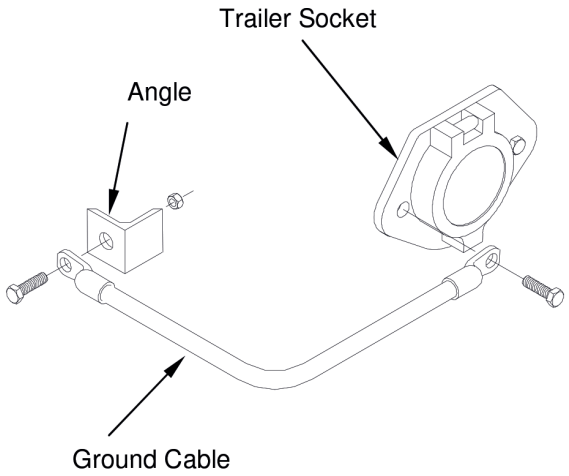
> ⚠ **CAUTION!**
> Power (charge) cable from tractor batteries to trailer must also be protected with a 150 amp circuit breaker at the tractor batteries.

5. Ground trailer socket to main structure of trailer. Use the 18" ground cable, supplied, and bolt it to the trailer socket and suitable structure on the nose of the trailer. An angle has been provided, it can be used by welding it to the crash plate, or other suitable structure.



For trailer applications with dual pole socket:

1. Using 1-0 ga. cables, supplied with trailer kit, feed each end through battery-box wall and install a compression terminal on both red and black cables.

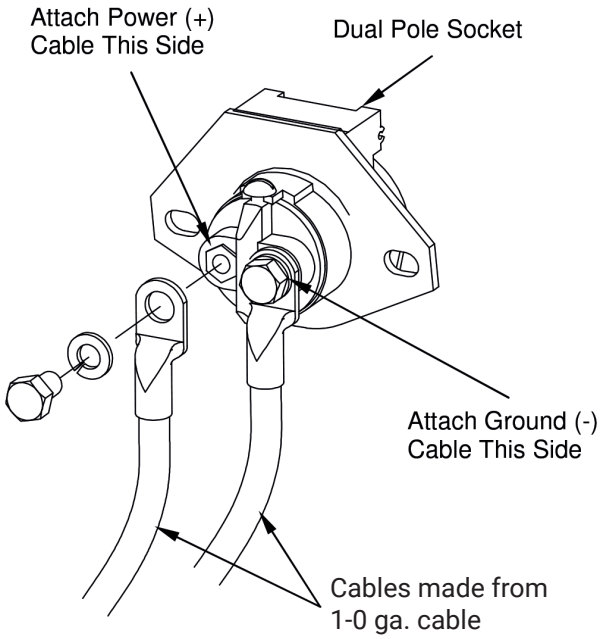
   NOTE!
   Do not connect any cables to batteries at this time.

2. Run cables from battery box to trailer nose, securing them every 24" with cable ties.

3. Install dual pole socket in nose of trailer. Drill 1-3/4" hole in trailer and mount with hardware provided.

4. Route cables from auxiliary batteries to nose of trailer. Install cables to socket as shown.

5. Apply a generous amount of Dielectric Grease over cable terminals.



IMPORTANT!
Be sure to orientate cables as shown, power(+) to the left, ground(·) to the right..

⚠ CAUTION!
Power (charge) cable from tractor batteries to trailer must also be protected with a 150 amp circuit breaker at the tractor batteries.

6.5 Battery cable connection

1. Assure vehicle ignition switch is off and battery ground cables are disconnected at battery.
2. Refer back to 6.2 and 6.3 instructions for connecting to batteries. Two batteries recommended for all Liftgates. Additional batteries connected in parallel may be required for heavy usage.

⚠ CAUTION!
Protect wires from any sharp edges or holes that may abrade insulated covering of wires.

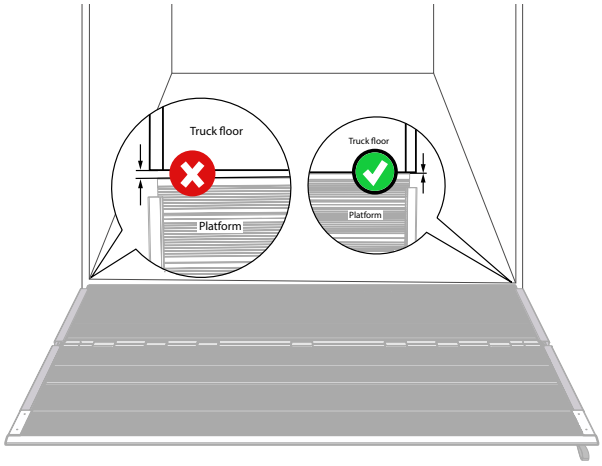
⚠ CAUTION!
Secure battery cable so it does not come near, or in contact with, other vehicle wiring, fuel lines, brake lines, air hoses, exhaust system, etc.

3. Reconnect battery ground cable(s).

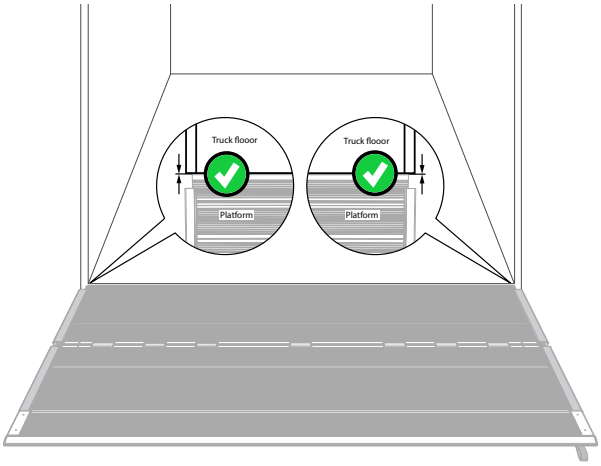
7 Test and adjust liftgate

⚠ WARNING!
Before operating the liftgate, read and understand the ówner´s manual for directions on how to operate the liftgate safely.

1. Now that your liftgate is installed and before we fully weld the brackets, we need to check things are working properly. The first thing we need to check is that the platform contacts the truck or trailer rear door frame correctly. Run the liftgate all the way to the end of the track and raise the platform to floor level. The platform should be fully perpendicular to the rear door frame with the rubber stops on both sides of the platform being fully in contact with the rear door frame.

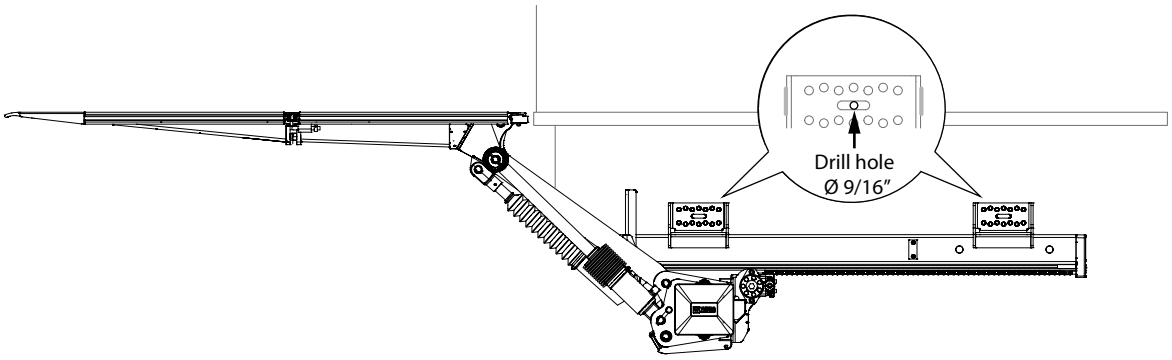


Picture 27. Incorrect contact with rear door frame



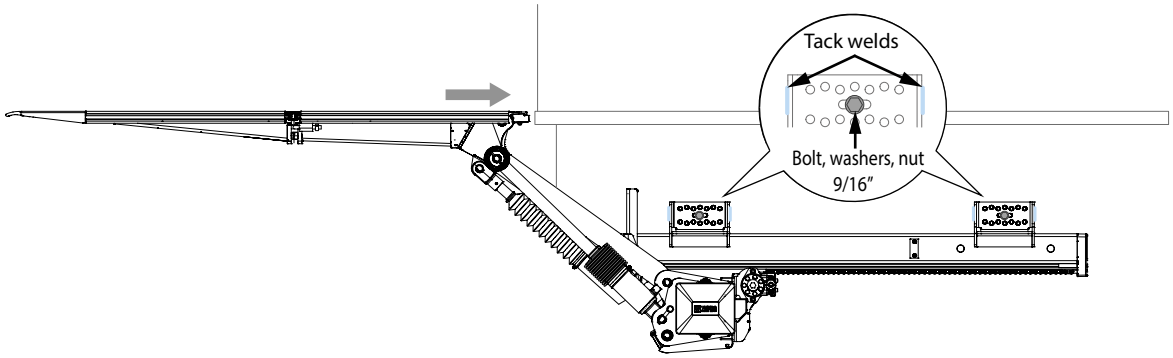
Picture 28. Correct contact with rear door frame

2. If your platform does not meet the rear door frame correctly you will need to adjust the track on the side on which the platform is not touching the frame. Go to the brackets on that side and drill a 9/16" hole in the center of the slotted hole on each bracket. See Picture 29.



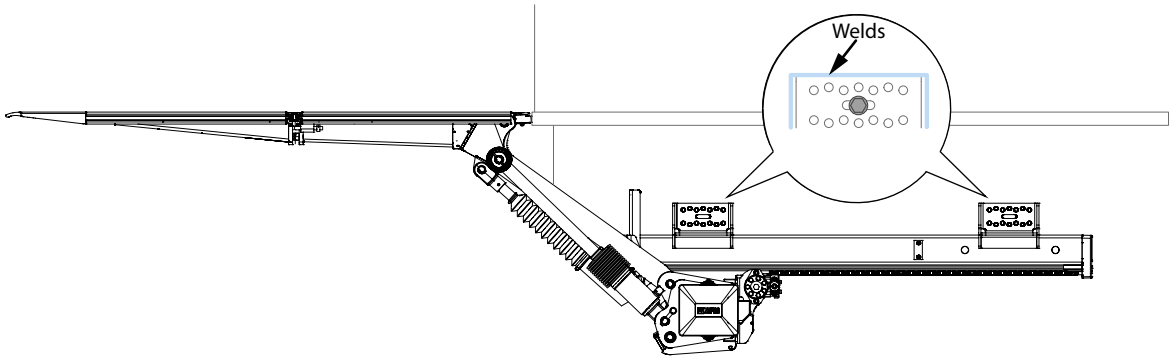
Picture 29. Temporary fix the track with a bolt in the centre of the slotted hole on each bracket

3. Install a 9/16" bolt and nut through the bracket and vehicle chassis using washers and tighten to secure the bracket to the chassis. See Picture 30.
4. Cut the tack welds off on the brackets to release the brackets from the chassis and allow them to be moved. See Picture 30.
5. Loosen the bolts installed in step 3 and slide the brackets forward toward the front of the vehicle until the platform touches the rear door frame on both sides. See Picture 30.
6. Tighten the bolts to secure the profiles. See Picture 30.



Picture 30. Slide the brackets forward until the platform touches the rear door frame on both sides

7. Test run to make sure both sides touch at the same time. If they do, you can now fully weld all the brackets to finalize the install to the chassis. See Picture 31.



Picture 31. Fully weld all the brackets, front and rear, left and right hand side of the truck

7.1 Setting the work position

If necessary, you may need to set the correct working position. The correct working position is set so the platform reaches the floor with the gate fully tracked out to the adjusting bolt stops. The gate should be fully tracked out and the platform should hit the truck floor correctly. The adjusting bolts will help with that. Follow the steps below carefully to set the stops.

1. Now that you have power use the main controller to lower the platform until it is about 12" from the ground and you are sure it can be tracked out.
2. Use the buttons to track the platform out all the way until it hits the stops.
3. Lower the platform to the ground.
4. Open the platform.
5. Raise the platform until you reach the desired height.
6. Track the liftgate back toward the front of the truck until it hits the truck doorsill.

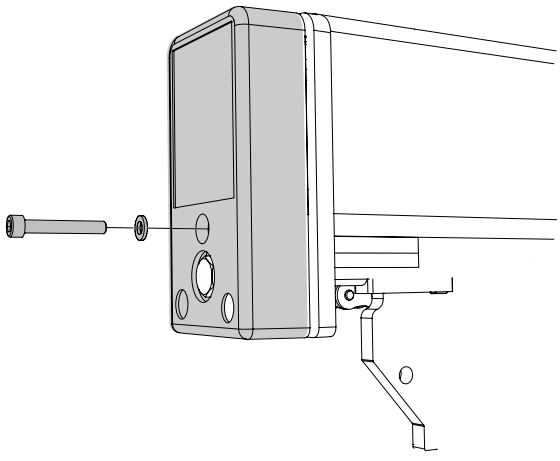
Comment

The space for adjusting the working position forwards is limited by the length of the platform. Make sure the platform can be unfolded into the intended working position after installation.

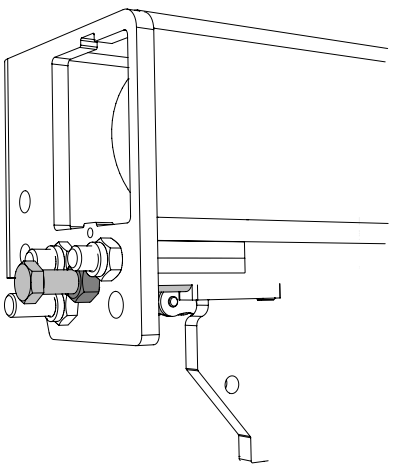
7. Unscrew the rear end caps on both slide profiles.
8. Loosen the adjusting screws' counter-nuts.
9. Adjust the lift to the correct working position using the adjusting screws.

> **IMPORTANT!**
>
> It is important that the adjustment is made equally on the left and right sides.

10. Lock the adjustment by tightening the counter-nuts.
11. Screw the end caps on to both slide profiles.



Picture 32. The slide profile's end cap



Picture 33. Screw for setting the work position

7.2 Adjusting the platform tilt

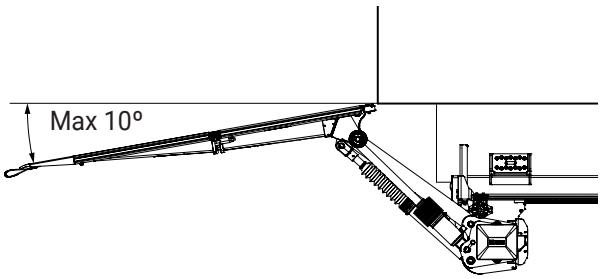
The platform tilt can be adjusted if needed

1. Run the lift up until the platform reaches the vehicle floor. Loosen the cylinder boots.
2. Undo lock screw (A) on the tilt cylinder installed on the platform. Screw the stop all the way back (B) toward the platform. See Picture 35.
3. Tilt the platform down to max 10º below the horizontal. See Picture 34.

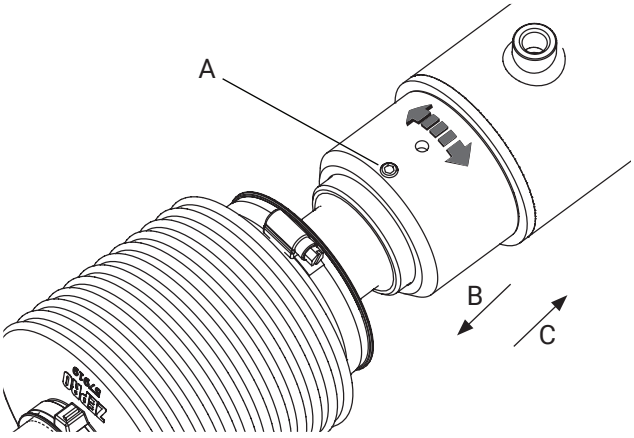
> ⚠ **WARNING!**
>
> To ensure lift safety and CE compliance, adjust the downward tilt angle to no more than 10º.

4. Adjust the end stop all the way to the top of the cylinder (C). Picture 35.
5. Fix the setting with the lock screw (A). See Picture 35. **Tightening torque: 2.5-3.5 Ft-lb.**
6. Loosen the lock screw (A) on the other tilt cylinder.
7. Turn the adjuster sleeve so that the tilt cylinder fits into the attachment point on the platform and then fix this setting using lock screw (A).
8. Install the other tilt cylinder in the platform attachment point. Use the enclosed shaft and screw. Tighten the screw. **Tightening torque: 59 Ft-lb.**

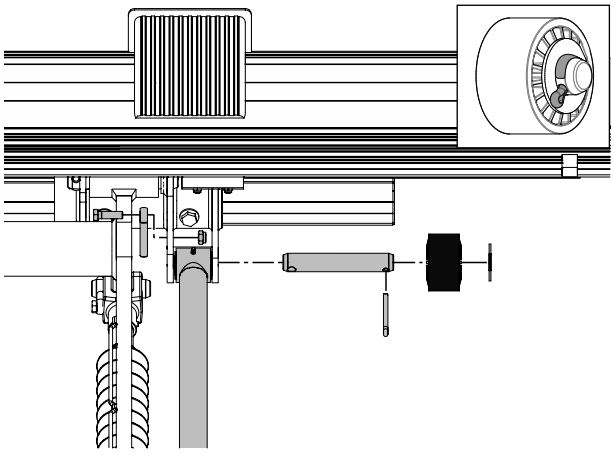
   NOTE!
   Make sure the cylinder is installed with the grease nipple facing up.
9. Fit the tilt cylinder boots.
10. Fit the support wheel on the shaft. Secure with associated split pin.
11. Test all functions.



Picture 34. The downward tilt angle must be adjusted to max. 10°



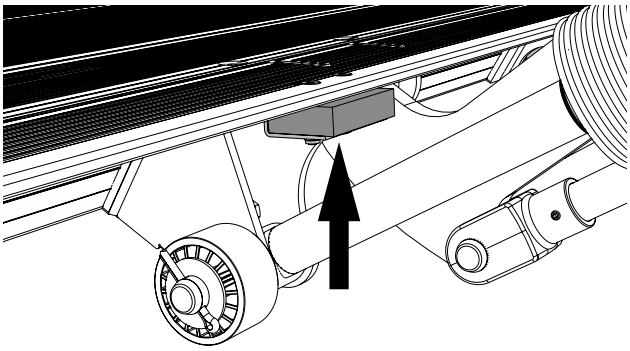
Picture 35. End stop with lock screw



Picture 36. Install the tilt cylinder on the platform

7.3 Platform stop

The platform is fitted with two platform stops installed beneath the bavetta (rear edge of platform). If necessary, the platform stops can be moved sideways if they are e.g. in the way of the superstructure shute bolt.



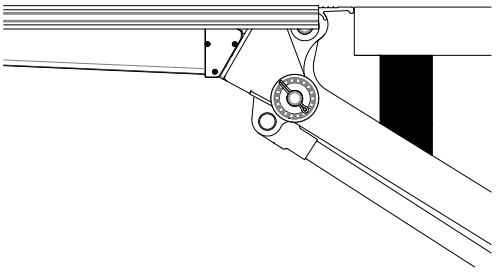
Picture 38. Platform stops are installed beneath the bavetta

7.4 Arm stops (optional)

If platform stops cannot be installed, they may be replaced by end stops between the lift arms and the vehicle floor rear beam. The left and right end stops must be reached at the same time, as high as possible on the left arm.

IMPORTANT!

Welding on the lift arm is not permitted. Installation must take place on the vehicle body.



Picture 37. Fit end stops between the lift arms and the rear beam of the vehicle floor

7.5 Purging the cylinders

Purge the lift cylinders by lowering the platform all the way to the ground a few times. It may be necessary to raise the truck to allow the platform to be lowered completely.

Purge the tilt cylinders by tilting the platform all the way up and then all the way down.

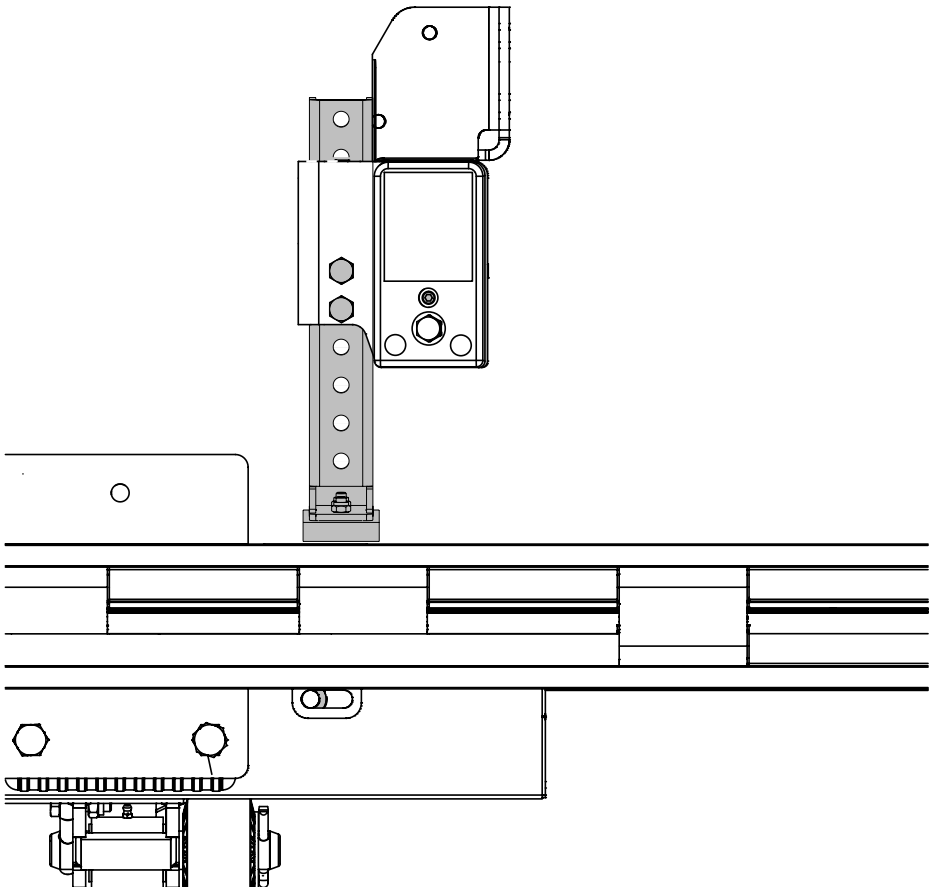
7.6 Transport stops

Transport stops must be installed to secure the platform during transport.

IMPORTANT!

Transport stops must always be installed in pairs, one on each slider profile.

1. Run the lift to transport position.
2. Choose an appropriate hole pattern for installing the transport stop.
3. Bolt the transport stops to the left and right slider profiles.
   Tightening torque: 51-55 Ft-lb.

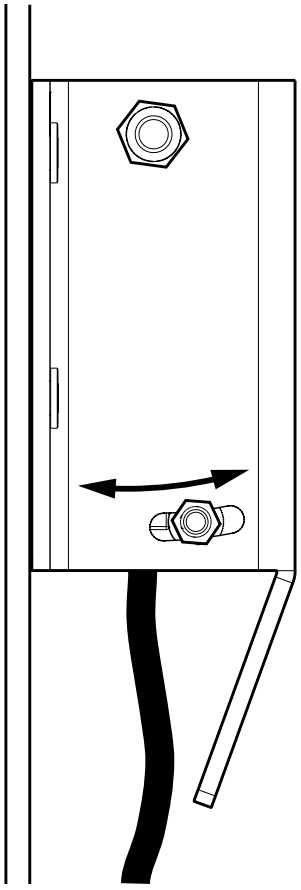


Picture 39. Installing transport stops

7.7 Adjusting the autotilt angle

By default, the autotilt angle is set to 0 °. The angle sensor is mounted in line with its attachment. If desired, the position of the sensor can be changed to adjust the autotilt angle up to max. 4 °.

1. Slightly loosen the sensor's two fixing screws, see Picture 40.
2. Adjust the position of the sensor by turning it, see Picture 40.
3. Tighten both sensor mounting screws.



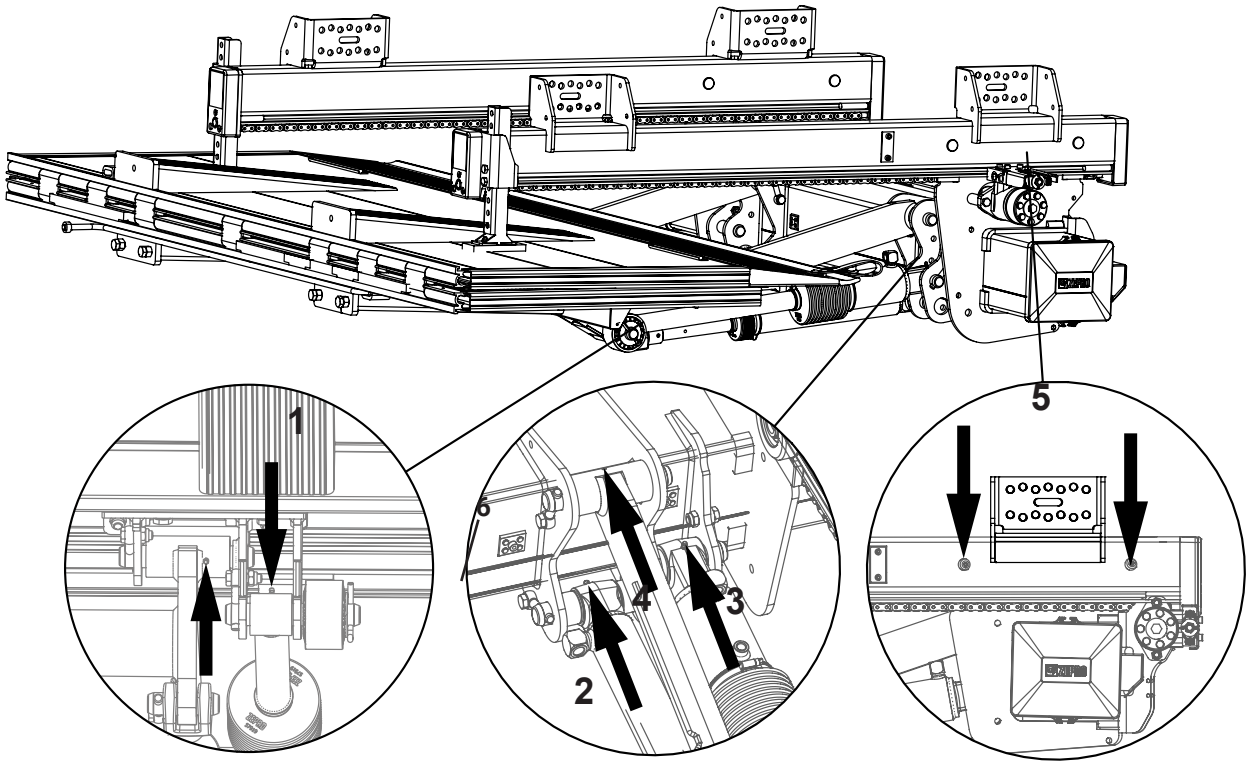
Picture 40. Adjusting autotilt angle

8 Lubrication and oil level check

8.1 Lubrication points

The following lubrication points must be greased on installation. Move the slider all the way in on the rails to access the grease nipples through the slider profile holes when lubricating the slider wheels.

1. The tilt cylinder bearing at platform, right and left sides.
2. The tilt cylinders' bearing against frame, right and left side.
3. The lift cylinders' bearing against frame, right and left side.
4. The 1st booms' bearing against frame, right and left side.
5. The slider's wheels, right and left side.



Picture 41. Lubrication points

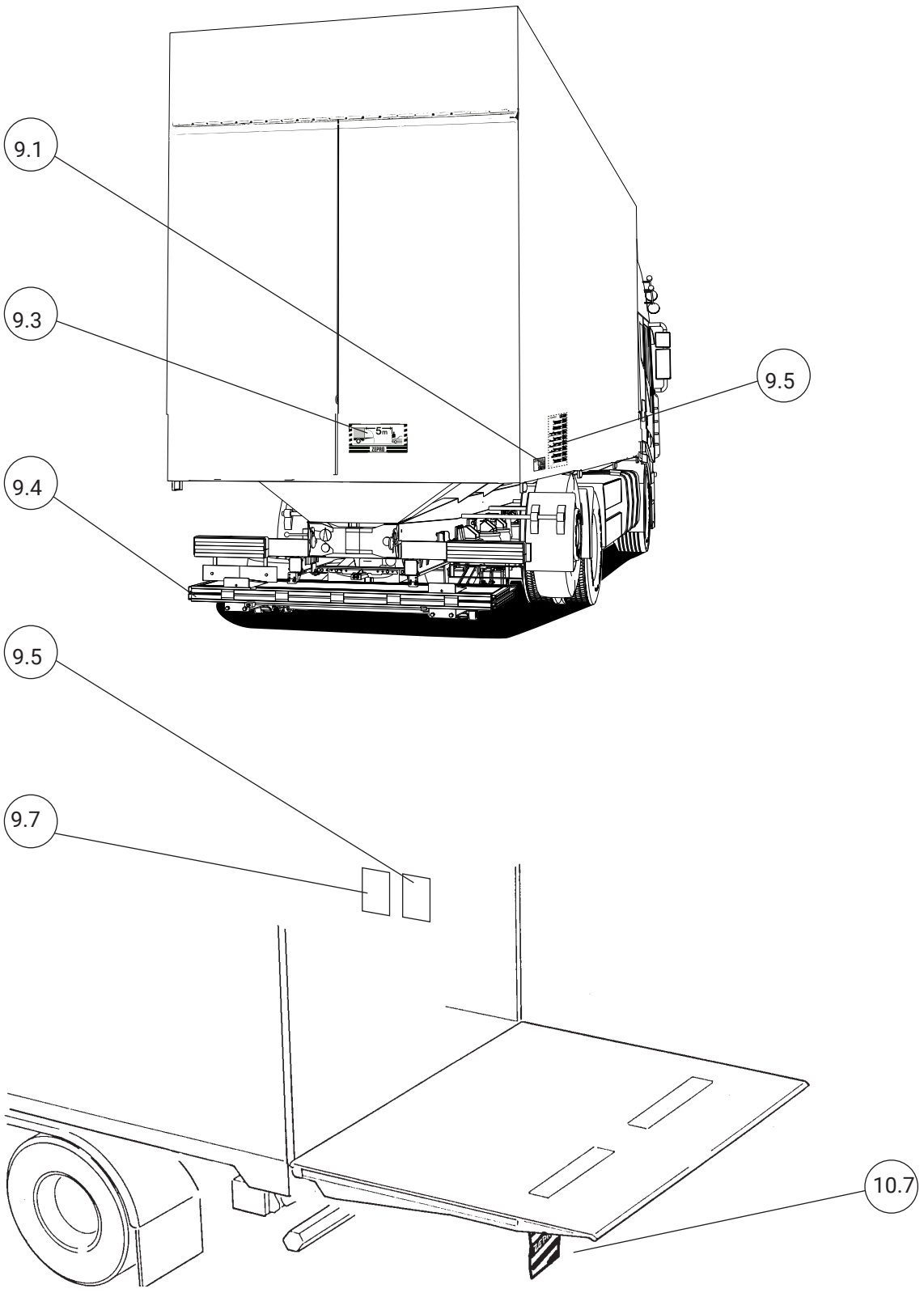
8.2 Oil level check

Check the oil level in the tank, top up if necessary.

If the hydraulic oil needs to be replenished, use Shell Tellus 15 or equivalent.

9 Decals

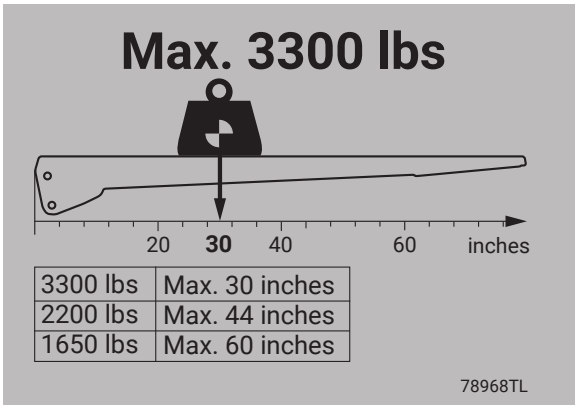
Below, an overview of the location of the different decals is shown. Image of decals and further information can be found under the each subchapter for subsequent pages.



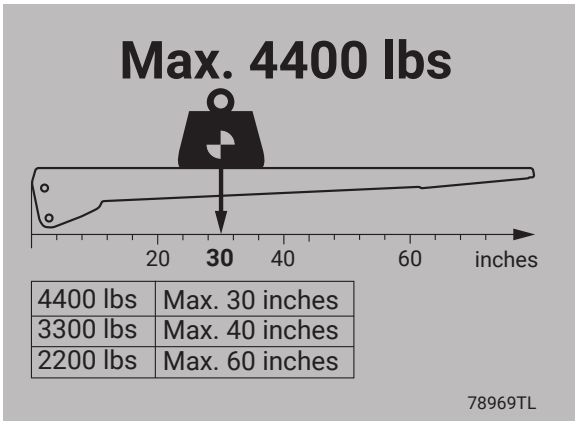
Picture 42. Overview of labelling

9.1 Max. permissible load

Affix a ‘Max. permissible load’ sticker for the model concerned next to all control device stickers.



Picture 43. Max. permissible load for load capacity 3300 lbs, load centre distance 30".

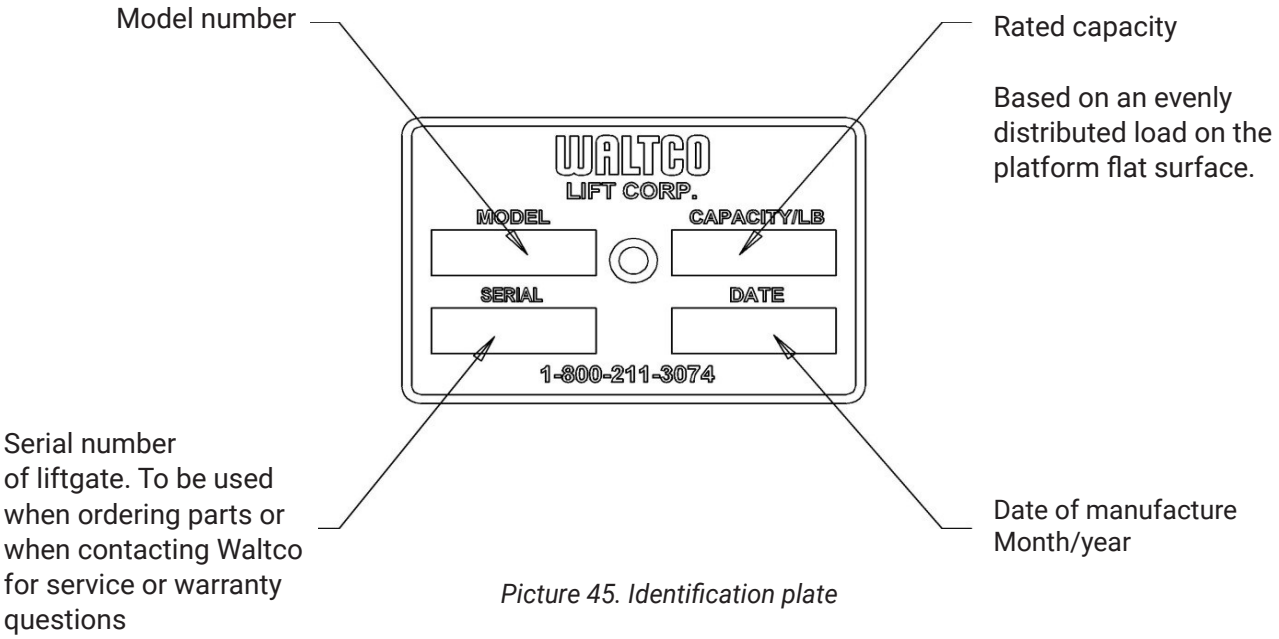


Picture 44. Load diagram for load capacity 4400 lbs, load centre distance 30".

9.2 Identification plate

The identification plate is fixed on to the liftgate's frame. Affix the corresponding sticker version of the identification plate, preferably by the cab door post to facilitate identification.

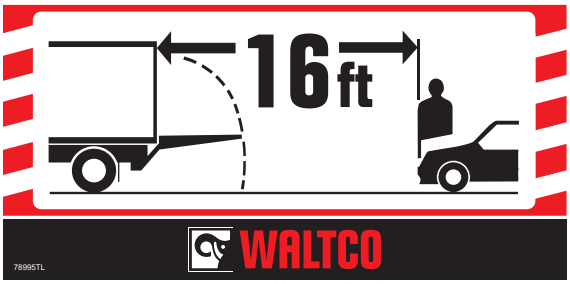
The identification plate contains the following information:



Picture 45. Identification plate

9.3 Work area

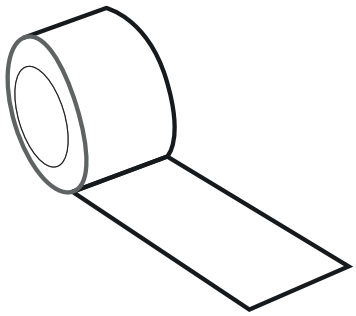
Affix the sticker clearly visible on the rear of the vehicle.



Picture 46. Work area

9.4 Warning tape

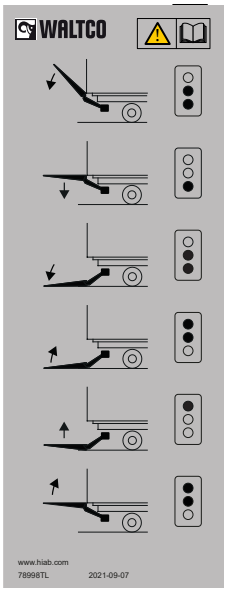
The warning tape is affixed along the edges of the platform to make the edges more conspicuous when the platform is deployed. The location of the warning tape often coincides with the contour marking, in which case the warning tape can be omitted.



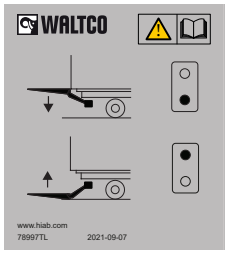
Picture 47. Warning tape

9.5 Control device sticker

Affix the controller sticker next to the relevant controller.



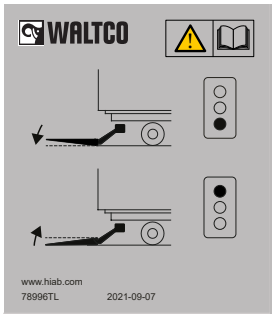
Picture 48. Control device sticker for CD 9



Picture 49. Control device sticker for CD 10

9.6 Autotilt sticker

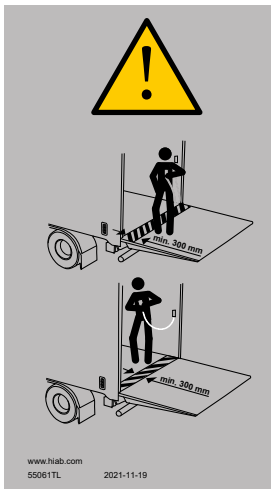
Affix the autotilt sticker next to the controll device sticker 78996TL if the liftgate is equipped with autotilt.



Picture 50. Additional Auto-tilt sticker for CD 9

9.7 Danger area

If one is fitted, affix the sticker on the inside of the vehicle body next to the hand control unit.



Picture 51. Danger area

9.8 Warning flags

Install warning flags as close to the top and as close to the edge of the platform as possible, but without the risk of the flags coming loose when the platform is placed on the ground. Swage the tracks together to secure the warning flags.

Picture 52. Warning flags

10 Testing and verification

Testing and verification of the liftgate takes place in accordance with the installation/delivery inspection. Verify that the liftgate is suitable for the vehicle in question and for the intended use.

10.1 Static load test

10.1.1 Deformation

Position the liftgate half way to vehicle floor level and with the platform horizontal. Measure dimensions A-B-C-D for comparison as illustrated.

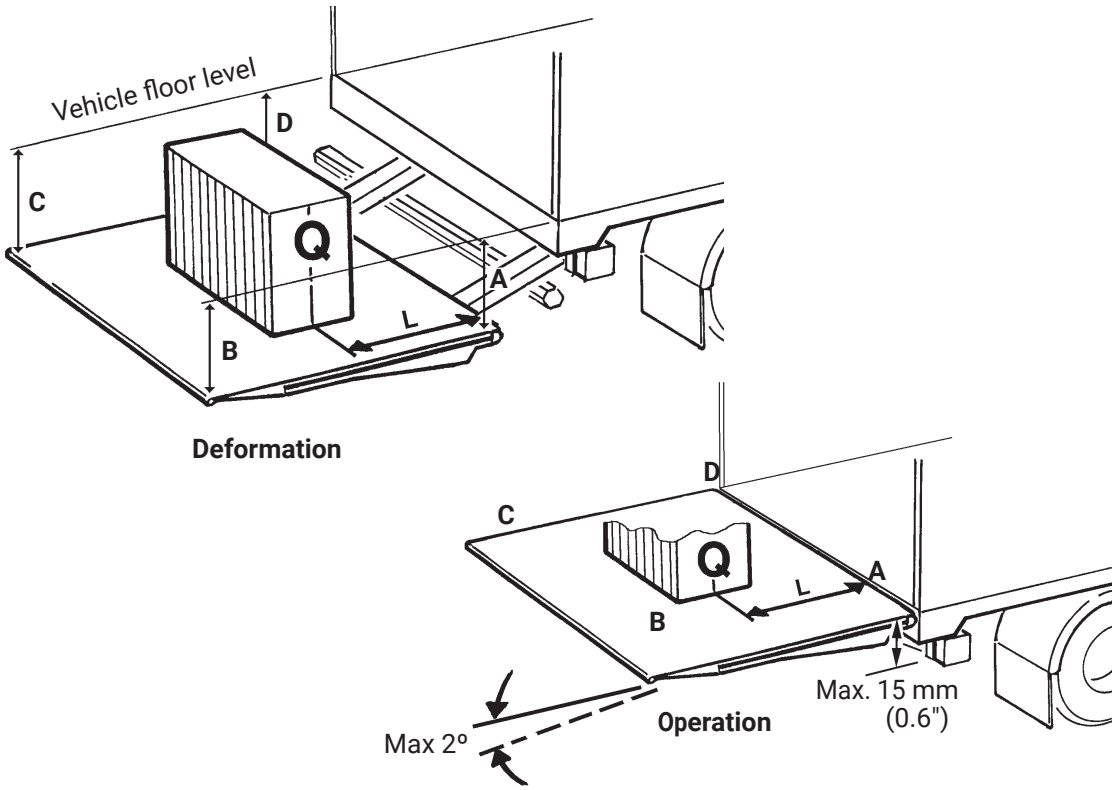
Place a test load on the platform, as shown in table (for each lift model/lift capacity).
Remove the test load from the platform. Repeat the measurement of A-B-C-D and verify that there has been no deformation of the lift or its fixing.

10.1.2 Operation

Place a test load on the platform, as shown in table. The liftgate must be at the same level and angle as the vehicle floor. Leave the test load for 15 minutes. Verify that platform operation is not more than 15 mm in the vertical direction (points A and D) and not more than 2° in the angular direction (points B and C), in relation to the vehicle floor level.

Capacity	Load 1000 kg (2200 lbs)	Load 1500 kg (3300 lbs)
	Distance out on platform (L)	
1500 kg (3300 lbs)	1410 mm (55")	940 mm (37")
2000 kg (4400 lbs)	1875 mm (74")	1250 mm (49")

Static load (Test load 1.25 x liftgate loading capacity).
For liftgates with load centre of 750 mm (30").



Picture 53. Testing and verification

10.2 Dynamic load test.

10.2.1 Test with max. load

Place a test load on the platform, as shown in table (for each lift model/lift capacity). Check that the lift operates correctly in the normal range of movement, i.e. up, down, tilting at ground level and tilting at vehicle floor level.

10.2.2 Test with overload

Place a test load on the platform, as shown in table (for each lift model/lift capacity). The test load should be 1.25 x the lift model's max. load. Verify that the liftgate cannot lift the load when the up function is switched on (it may however be possible to tilt up the load).

Dynamic load (Test load 1.0 x liftgate loading capacity). For liftgates with load centre of 750 mm (30").

Capacity	Load 1000 kg (2200 lbs)	Load 1500 kg (3300 lbs)
	Distance out on platform (L)	
1500 kg (3300 lbs)	1125 mm (44")	750 mm (30")
2000 kg (4400 lbs)	1500 mm (59")	1000 mm (39")

10.3 Test of safety functions

The liftgate functions must be tested.

Check:

- That the red light in the driver's cab is disabled when the platform is in transport position and vice a versa, and that it is enabled when the platform is deployed.
- That the liftgate cannot be activated if the cabin switch is in the off position.
- That the liftgate cannot be activated when the main switch fuse is removed.
- That the overflow valve is activated when the lift is operated up to the vehicle floor level or end stops.
- That the liftgate cannot be lowered or tilted down if the electrical connector from the electric hose rupture valves is disconnected from the lift and tilting cylinders respectively.
- That the platform max load sticker is present and suitably positioned in relation to the load diagram for the lift model concerned.
- That warning flags and reflectors are fitted and fulfil their function correctly.
- That all safety and operating stickers are affixed in their respective positions.
- That the platform's mechanical locking device is working (if accessible).
- That the instructions for using the liftgate have been left in the driver's cab.
- That the CE declaration of conformity has been completed.

11 Specifications

11.1 Weights

Many of the lift's parts are heavy, requiring the use of lifting equipment to get them in place. Make sure the weight of the parts does not exceed the maximum permitted load of the lifting equipment.

Complete lift chassis ZS MK2 (without platform)

Lifting capacity	Arm	Weight
3300 lbs	61"	814 lbs
4400 lbs	61"	822 lbs

Aluminium platforms

62" x 94"		309 lbs
78" x 94"		366 lbs

12 Appendix

12.1 Battery maintenance

When storing for longer than 1 week, it is recommended to disconnect the lift from the battery via the main switch or by releasing the lift's main fuse, in order to reduce the risk of the battery discharging. The length of time the vehicle can be stored without the battery charge level becoming too low depends on the condition of the battery, the charge level prior to storage and how much power other components in the vehicle take from the battery. After a period of storage, the battery must always be charged fully before operating the lift.

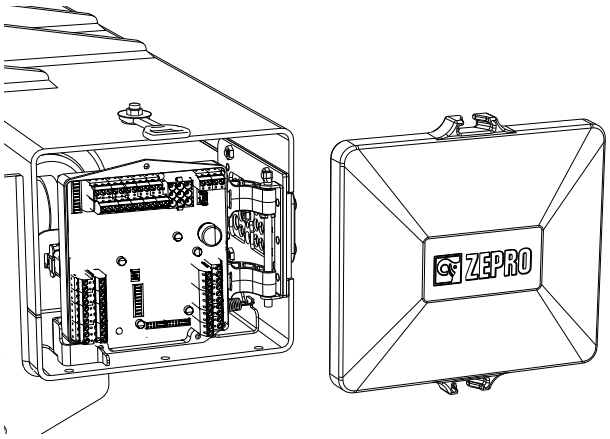
When the lift is operated repeatedly without starting or using the vehicle during lift installation or carrying out service and repairs, use the battery charger between operations to maintain battery charge.

IMPORTANT!
The battery charger must be disconnected when operating the lift. Risk of material damage.

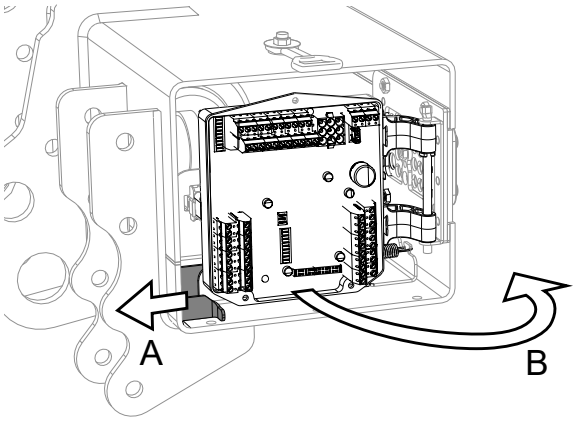
12.2 Accessing the hydraulic unit and the relay card

1. Remove the protective cap, secured with two quick-release locks or a rubber strap, see Picture 54.
2. Fold out the control card (B) and loosen the cabling at the connector on the hydraulic unit, see Picture 55 and Picture 56.
3. Release the hydraulic unit by unscrewing the wing nut and corresponding screw (C); see Picture 57 and pull out the hydraulic unit until the tank cap is accessible; see Picture 58.

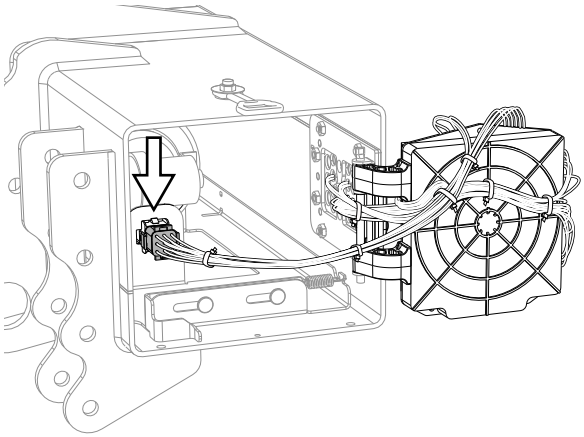
> ⚠ **CAUTION!**
> Ensure that no cables are trapped or in any other way damaged when the control card is folded out or removed.
> Do not pull out the hydraulic unit more than necessary; make sure it is not pulled completely out of the frame, as this can entail a risk of personal injury and damage to the equipment.



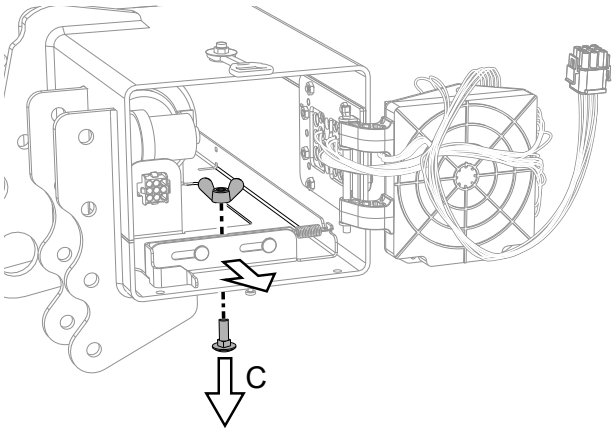
Picture 54. Remove the protective cap



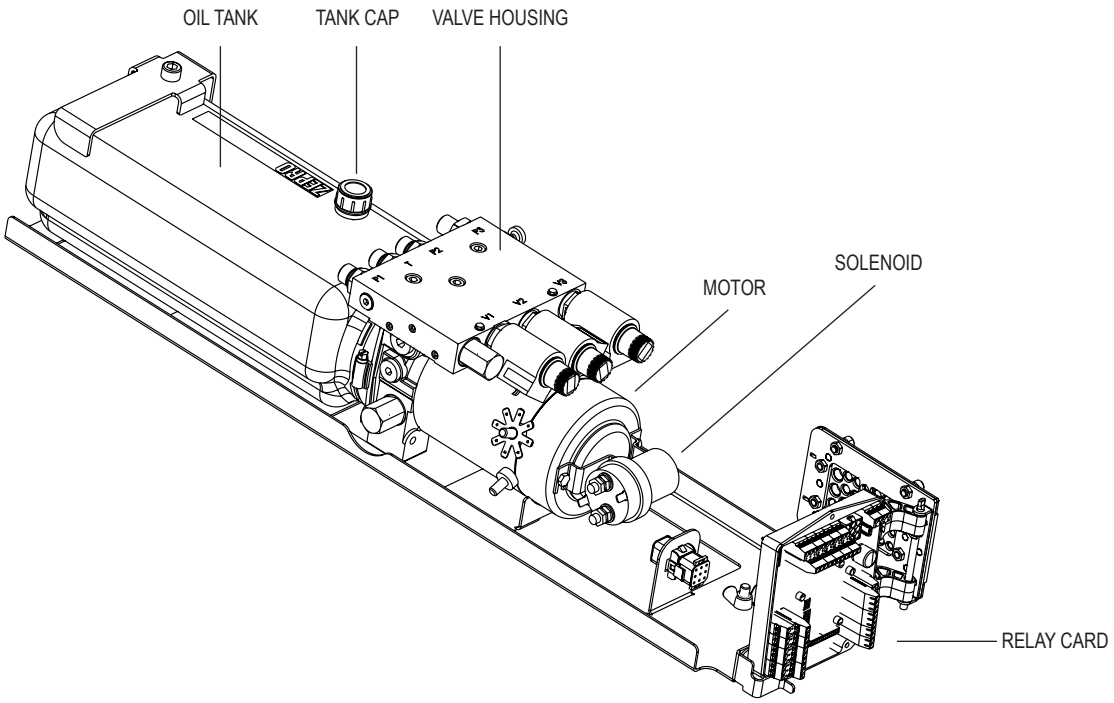
Picture 55. Release latch control card



Picture 56. Connection socket



Picture 57. Releasing the hydraulic unit



Picture 58. Hydraulic unit and relay card

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